DOCUMENT RÉSUME

ED 194 999 EA 013 073

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TITLE Design of Curriculum Development Centres. Educational Building Report 15.
INSTITUTION United Nations Educational, Scientific, and Cultural Organization, Bankok (Thailand). Regional Office for Education in Asia and Oceania.
PUB DATE 80
NOTE 124p.: Some drawings may not reproduce clearly.

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *Architectural Programing; *Building Plans; Classification; Curriculum Development; *Curriculum Study Centers; *Educational Facilities Planning; *Facility Guidelines; Foreign Countries; Postsecondary Education; Teacher Centers
IDENTIFIERS *Asia

ABSTRACT

Periodic adaptations of the curriculum to new needs with continuous analysis of results and feedback are some of the functions performed in many Asian countries by an institution called a Curriculum Development Centre (CDC). The first part of the study analyzes the function of a CDC, examines in general terms what sort of facilities are needed, taking into account the links existing between a CDC and other educational institutions, and illustrates with diagrams the general structure of a CDC in terms of its functional components and the grouping of facilities in it. The range of variations of a CDC regarding the staff and the construction area provided is shown through three models. The second part of the study suggests a typology of spaces designed to meet the basic needs of a CDC and applies it to the various sectors. The chapters correspond to the various functional groups. Each includes a detailed breakdown of the staff and construction area (three models) as well as a development of the proposed typology (sketch plans). A sketch master plan is given at the end of the second part. Information relating to staff and facilities of existing CDCs is given in the conclusion. (Author/MLF)

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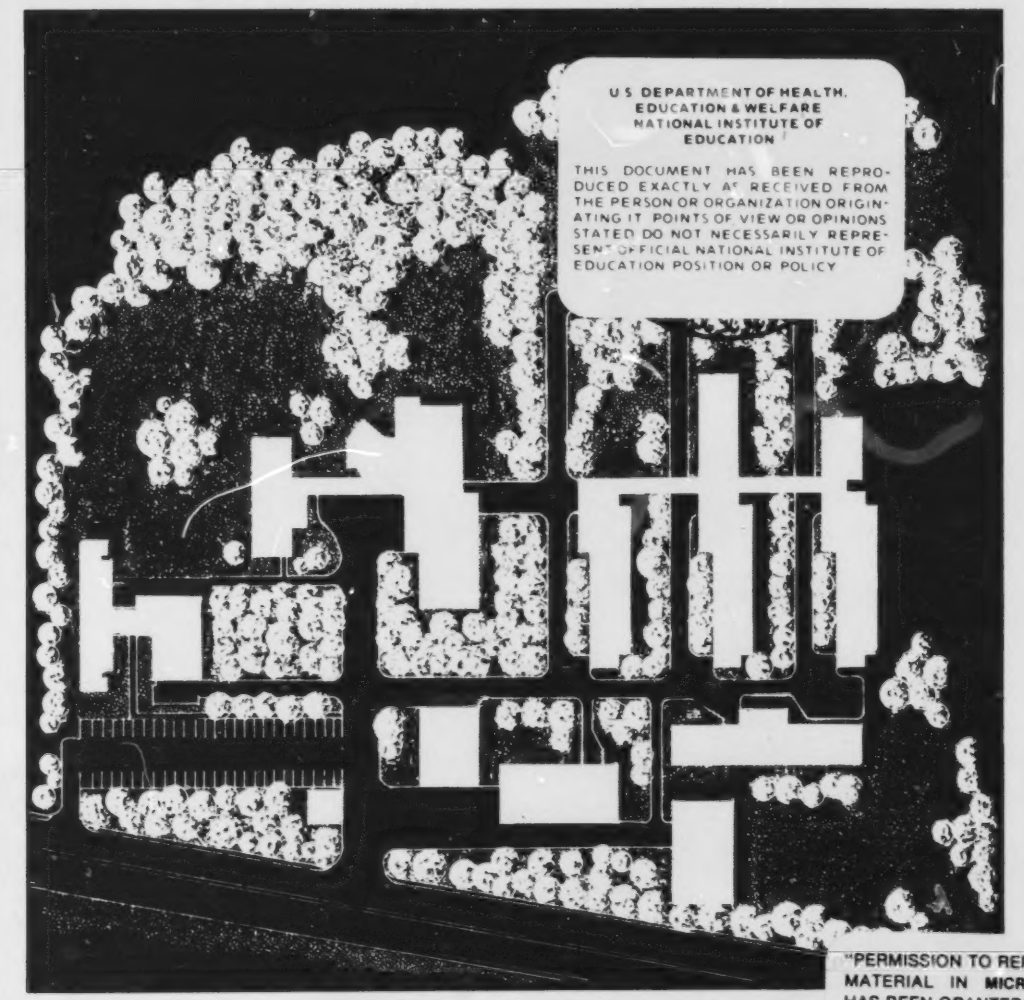
EDUCATIONAL BUILDING REPORT 15

Design of Curriculum Development Centres



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Bangkok, Thailand

Hamel, J.P.
Design of curriculum development centres.
Bangkok, Unesco, 1980.
77 p. (Educational Building Report 15)

1. CURRICULUM DEVELOPMENT CENTRES - BUILDING DESIGN. I. Unesco. Regional Office for Education in Asia and Oceania, Bangkok. II. Title. III. Series.

SfB (97)
UDC 727.5
Dewey 727.51

EDUCATIONAL BUILDING REPORT 15

AUG 1980
ERIC/CRESS
RECEIVED

Design of Curriculum Development Centres

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unesco regional office
for education in asia and oceania
Bangkok, Thailand

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Published by the Unesco Regional Office for Education in Asia and Oceania
P.O. Box 1425
Bangkok G.P.O.
Bangkok, Thailand

Printed in Thailand

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BKEB/79/M/670-2600

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INTRODUCTION

Curriculum reform, linked to educational reform with continuous analysis of results and feed back leading to periodic adaptations of the Curriculum to new needs, are some of the functions performed in many Asian countries by a particular type of institution bearing, either the name, CURRICULUM DEVELOPMENT CENTRE (CDC), or some other similarly descriptive name. But whatever their names, these institutions do perform basically the same functions with, of course, important variations due to the size and the political and educational organization of the country, and the actual distribution of tasks among the various departments/ divisions of the Ministry of Education.

It seems that, in many countries, Curriculum Development Centres do not on the one hand have adequate facilities to perform their functions satisfactorily and, on the other, have no literature giving guidance as to the type of accommodation which would suit their needs. It was for this reason a 'Design Guide for Curriculum Development Centres' was felt likely to be most useful.

The present guide is based on three sources of information:

i) The studies on curriculum development and Curriculum Development Centres published by the Unesco Regional Office for Education in Asia and Oceania (see bibliography) which provide an in-depth understanding of the objectives, functions activities and organization of CDC in various countries.

ii) The results of a study made by the author in five Asian countries in May-June 1977 namely, in Sri Lanka (CDC in Colombo), India (National Council for Educational Research and Training), Afghanistan (various institutions, departments and centres dealing with curriculum development in Kabul), Nepal (CDC in Kathmandu) and Thailand (Institute for the Promotion of Teaching Science and Technology in Bangkok). Particular attention was

paid during the study to the distribution of staff and facilities in the centres visited.

iii) Two studies including detailed schedules of accommodation and sketch plans prepared in collaboration with the Unesco Regional Office staff, first for Nepal (new buildings for the CDC in Kathmandu) and, secondly, for Afghanistan (regrouping of various institutions dealing with curriculum development in a new institution called 'National Educational Materials and Services Centre' in Kabul).

It should be emphasized that the purpose of this study is not that of giving a detailed view of the complexity of the curriculum development process from an educator's view point. Only those aspects which are directly relevant to the design problem have been developed here and they have been introduced in such a way as to follow the architect's working process, from a general understanding of the programme requirements to a first approach of the order of magnitude of the complex, leading to the critical choices to be made in collaboration with the users, and finally to detailed schedules of accommodation for each sector in the CDC.

The First Part of the Study analyzes the function of a CDC, examines in general terms what sort of facilities are needed, taking into account the links existing between CDC and other educational institutions, and illustrates with diagrams the general structure of a Centre in terms of its functional components and the grouping of facilities in it.

The range of variations of a CDC regarding the staff and the construction area provided is shown through three 'Models' which should help both designers and users in determining which model best meets their needs and matches their financial resources. It is at this point that the critical choices are to be made, although they have to be checked subsequently in detailing the accommodation schedule.

The Second Part suggests a typology of spaces designed to meet the basic needs of a curriculum centre, architectural programme and applies it to the various sectors. The chapters correspond to the various functional groups. Each includes a detailed breakdown of the staff and construction area (three 'Models') as well as

a development of the proposed typology (sketch plans). A sketch master plan is given at the end of the second part.

Information relating to staff and facilities of existing centres are given in the Annex.

It should be emphasized that the 'Models' used throughout the study are not to be considered as complete 'packages' or 'ready made' solutions to be chosen as such. They should be viewed only as references which would help in determining a specific programme meeting the specific needs of a given country. They should not become a brake in research for other innovative solutions.

In short, the present guide should be considered simply as a tool which can provide educational planners and the architects responsible for a new building with a mutual understanding of the implications of their decisions.

As such it is hoped that it will make their collaboration easier.

PART ONE
AN OVERALL VIEW

ANALYSIS CHART 1: BASIC FUNCTIONS AND TYPE OF FACILITIES

6

Functions of a Curriculum Development Centre

level or nature of Education

PRIMARY LEVEL ∈ Various subjects
LOWER SECONDARY ∈
UPPER SECONDARY ∈ Teams working per subjects
VOCATIONAL ∈
NON FORMAL, ADULT ED. ∈

Curriculum develop. process ↓

Type of activities / Facilities

	Individual work / Individual offices	Team work, discussions / Meeting rooms	Reference/research / Library	Laboratory testing and training / Laboratories	Research, for teaching aids / Workshops	Printing, duplication / Printing workshop	Data processing / Special machine room	Recording, filing / Storage	Staying overnight / Hostel facilities
CURRICULUM DEVELOPMENT									
Educational research	X	X	X						
Study of existing curricula	X	X	X						
Design of curriculum	X	X	X	X	X				
Production (written material, teaching aids)	X	X	X	X	X	X		X	
Pre-testing	X	X		X	X		X	X	
IN-SERVICE TRAINING									
Design of training	X	X	X	X	X				
Preparation of training material	X	X	X	X	X	X		X	
Training sessions		X		X	X				X
LEARNERS EVALUATION									
Design of evaluation mechanism	X	X	X	X	X				
Production (tests, questionnaires ....)	X	X	X	X	X	X		X	
Test session		X		X	X				X
Analysis of test results	X	X		X	X		X	X	
QUALITY CONTROL - SUPERVISION									
Design of quality control mechanism	X	X	X	X	X				
Continuous monitoring (orientation sessions for supervisors)		X		X	X				X
Analysis of data	X	X		X	X		X	X	
PROGRAMME EVALUATION									
Design of evaluation mechanism	X	X	X	X	X				
Production	X	X	X	X	X	X		X	
Group discussions		X		(X)	(X)				
Observation in situ									
Analysis of results	X	X		X	X		X	X	

CHAPTER ONE: BASIC FUNCTIONS AND TYPE OF FACILITIES

Chart 1, opposite, shows in summarized form:

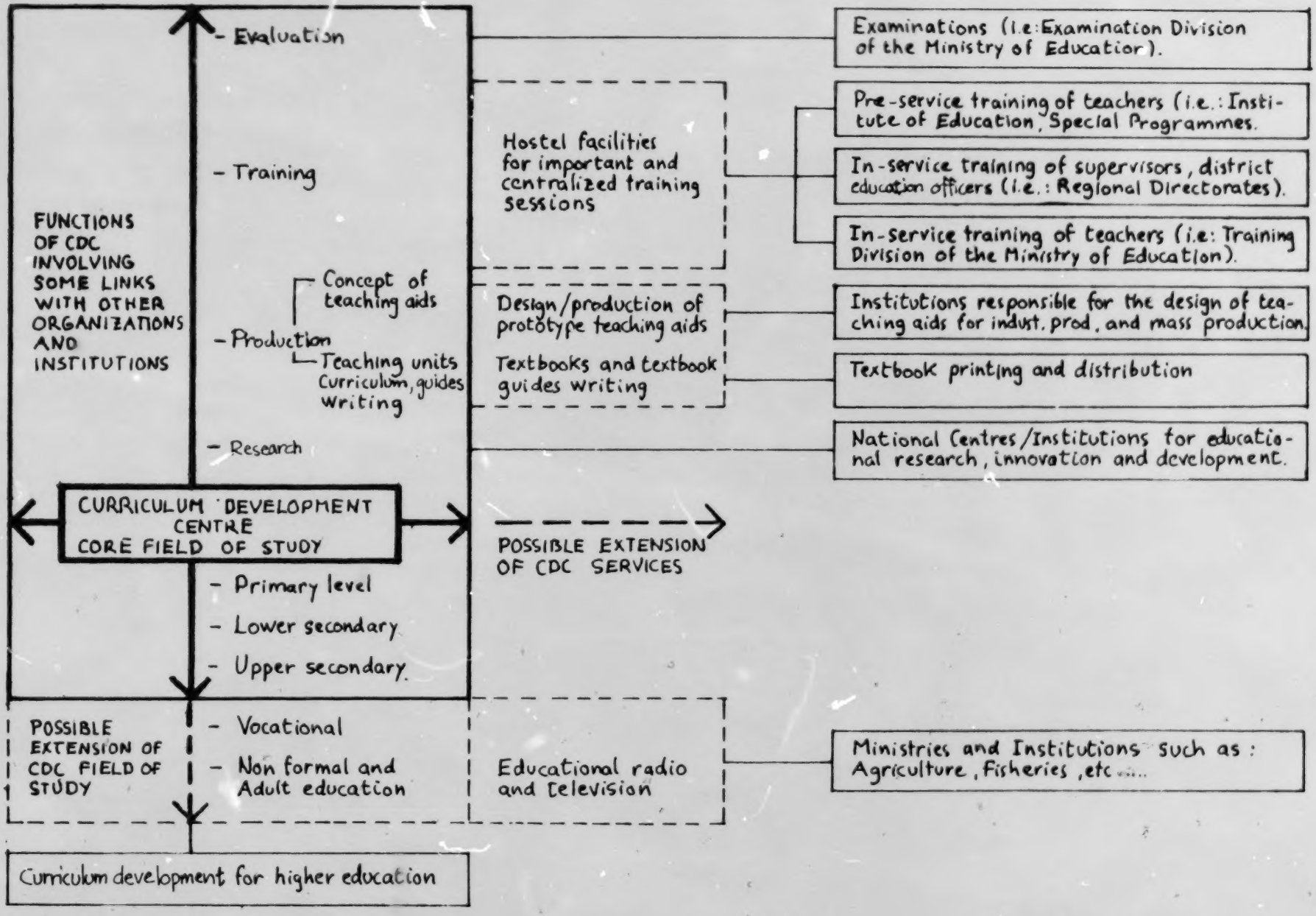
- the various steps in any curriculum development process, including in-service training and the various types of evaluation and control;
- the various levels of education to which this process can potentially be applied (this does not mean that every CDC includes them all in its programmes);
- to what sort of physical activities/facilities each sub-step of the curriculum development process corresponds.

Attention should be drawn to the concept of teams of curriculum developers, working on a single subject, or on groups of subjects, at the various levels (primary, secondary, etc.), as it will be seen, that an evaluation of the number of subjects to be developed - hence the number of teams and of persons per team - will be a key point in the architectural programming of any CDC.

The chart does not say much about the concept and content of curriculum itself, the analysis of which is not the purpose of this study. However, some short definitions would perhaps not be out of place here, as considerable confusion exists, even among educators, about the word 'curriculum'. Everything from a timetable to a syllabus has been called a curriculum:

- one can consider that the educational enterprise is divided into three distinct, definable sub-systems: the Curriculum system, the Instructional system and the Administrative/Management system;
- the Curriculum system involves the formulation of 'a structured series of selected learning outcomes, and implies the intention to achieve these outcomes (cognitive, psycho-motor ...)';
- the output of the Curriculum system is a curriculum specification which becomes the input to the Instructional system. This specification acts as a guide (in writing educational books, for instance, the task of textbook writers is to interpret this guide).

8 ANALYSIS CHART 2: POSSIBLE VARIATION OF FUNCTIONS/LINKS WITH OTHER INSTITUTIONS 8


FUNCTIONS OF CDC INVOLVING SOME LINKS WITH OTHER ORGANIZATIONS AND INSTITUTIONS
- Evaluation
- Training
- Production
Concept of teaching aids
Teaching units Curriculum, guides writing
- Research
CURRICULUM DEVELOPMENT CENTRE CORE FIELD OF STUDY
- Primary level
- Lower secondary
- Upper secondary
POSSIBLE EXTENSION OF CDC FIELD OF STUDY
- Vocational
- Non formal and Adult education
Curriculum development for higher education
Hostel facilities for important and centralized training sessions
Design/production of prototype teaching aids
Textbooks and textbook guides writing
Educational radio and television
POSSIBLE EXTENSION OF CDC SERVICES
Examinations (i.e: Examination Division of the Ministry of Education).
Pre-service training of teachers (i.e.: Institute of Education, Special Programmes.
In-service training of supervisors, district education officers (i.e.: Regional Directorates).
In-service training of teachers (i.e: Training Division of the Ministry of Education).
Institutions responsible for the design of teaching aids for indust. prod. and mass production.
Textbook printing and distribution
National Centres/Institutions for educational research, innovation and development.
Ministries and Institutions such as: Agriculture, Fisheries, etc.....

CHAPTER TWO: VARIATION OF FUNCTIONS AND LINKS WITH OTHER INSTITUTIONS

Chart 2, opposite, shows:

- What can be considered as the core field of study of a CDC (area limited by thick uninterrupted lines and thick arrows);
- how, in view of the particular situation in the country, a CDC can extend its activities in order to cover a more important field of study (i.e. curriculum development for vocational schools, which in some countries might be dealt with by a separate institution, distinct from the CDC), or to include some services which could be in principle located elsewhere;
- some of the institutions with which a CDC has important functional and (or) administrative links.

The importance of the above considerations will not be lost on the designer, for it is clear that depending on a decision made as to the fields of study the CDC has to cover, there may be considerable variations in staff and in the size of the institutions. Such basic decisions will, of course, depend on a number of factors linked to the particular situation in the country.

One problem having direct implications for building is the definition of the specific tasks of a CDC in the field of teaching aids development. A coordinated approach to support curriculum implementation as it touches the learners in the learning system would indeed involve aspects such as the design of textbooks and other printed material, the design of relevant audio-visual materials, the design of relevant radio and possibly TV sequences. From the curriculum specifications, learning sequences, and other material prepared by the curriculum developers, signals would emanate specifying audio-visual aids and learning/teaching equipment. Thus, the activities of institutions and workshops dealing with teaching aids production (science kits for instance) should not be independent, unconnected actions but specifically geared to the signals indicated above. However the fact that there is

a problem of coordination does not mean that a CDC has to get involved in mass production of books or teaching aids.

In fact, it is not advisable to include any form of mass production in the programme of CDC (which is sometimes the case), as there is a great danger that this becomes the primary concern to the detriment of the CDC's main task which is, of course, curriculum development. Textbook writers can be located in the CDC, but not mass printing and distribution activities. Production of prototype teaching aids - which can allow the testing of new educational concepts - can be part of the CDC activities. But neither the detailed design for industrial production (which is a very specialized job), nor the mass production.

Another important problem is the question of training. Effective implementation of the curricula requires the training of key personnel of the in-service and pre-service training programme for teachers. Thus, hostel facilities may be needed. However, in view of the likely high costs of the construction involved, the mechanism/organization of training sessions should be extremely carefully studied, taking into account available facilities not too far from the Centre, which could be occasionally used by people attending training sessions.

CHAPTER THREE: ORGANIZATION AND FUNCTIONAL GROUPING OF FACILITIES

The three diagrams which follow show the organizational structure of a CDC, identify its functional components and suggest their grouping.

From 'Model I' to 'Model III', there is a progression in the organizational complexity in connection with the growing size of the Centre. As the total staff of the Centre increases, certain administrative functions and certain facilities such as the printing of documents in small runs, conference rooms, libraries, etc., are likely to be decentralized or duplicated in order to work efficiently. This involves, of course increased costs in construction, and careful thinking should be given to this aspect with the aim of ensuring the best efficiency at the lowest cost, or, in other words, to aim at maximizing the utilization of investment through common facilities in situations where actions are compatible, irrespective of whether the actions emanate from one unit or another in the CDC.

There is of course no established 'truth' in this field. A judgement has to be made taking into account the specific conditions of a given programme. Two extremes are to be avoided:

i) Excessive centralization which would make the management of a big centre difficult and hamper the work of the various units.

ii) Excessive decentralization which would lead to dispersion, lack of coordination and unnecessary duplication of facilities.

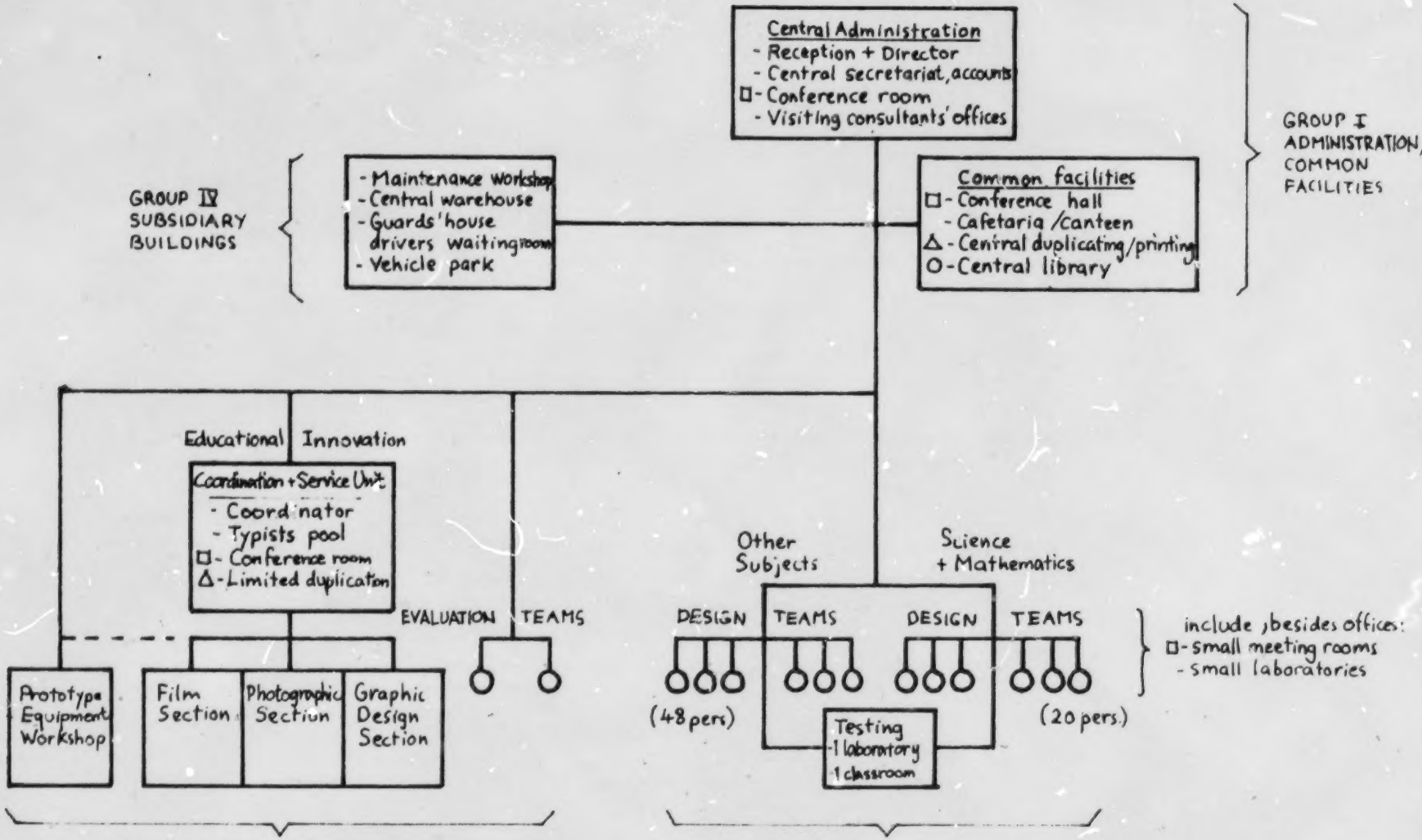
But before discussing in more detail the differences between the possible 'Models', some common features must be outlined. Looking at the diagrams one can see four to five main groups of facilities, irrespective of the total size of the centre:

Group I. includes two components:

- The central administration with a reception and information desk, offices for the General Director and assistants, the central secretariat

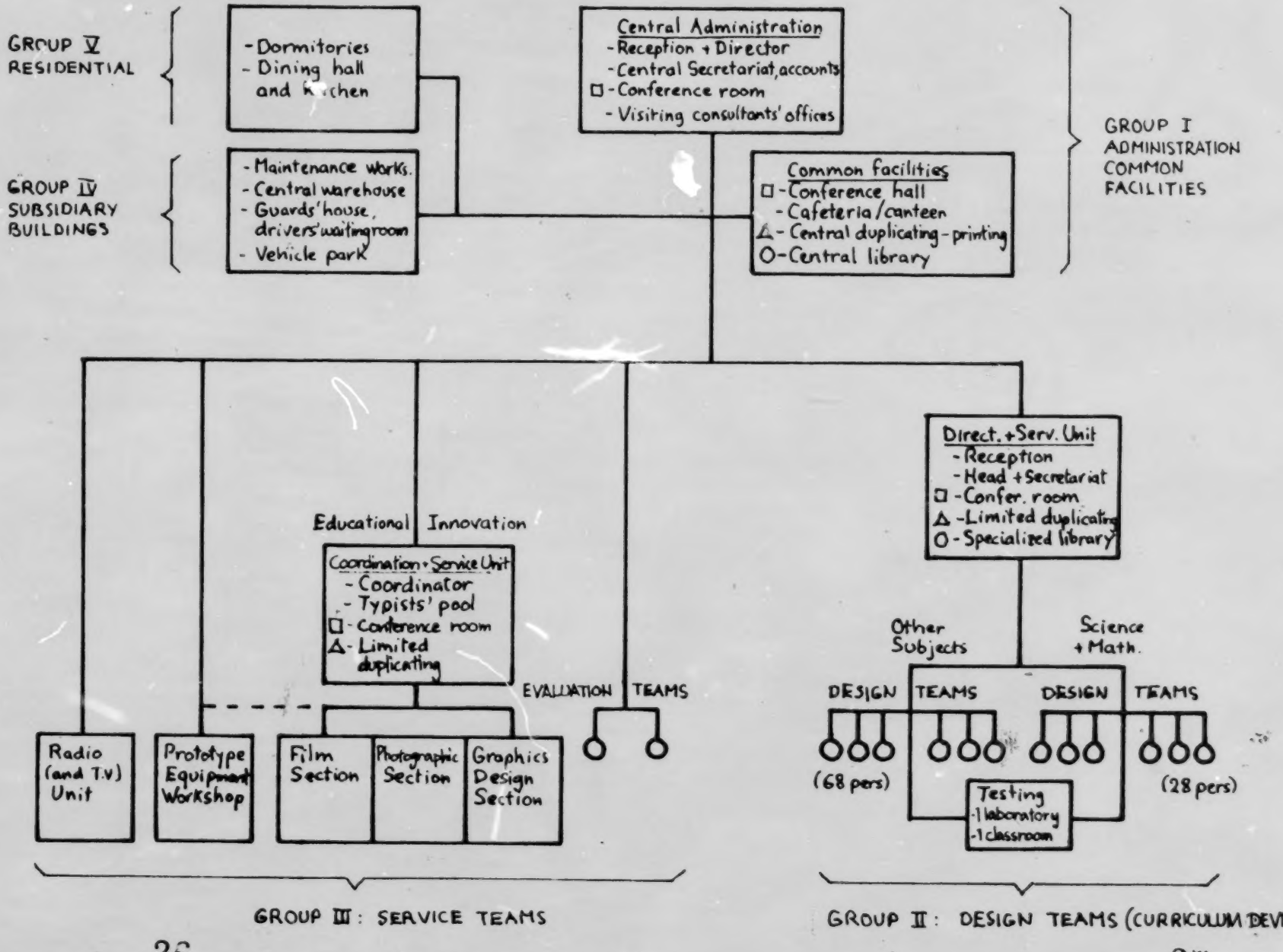
C.D.C. ORGANIZATIONAL DIAGRAM : MODEL I (small size C.D.C.)

12



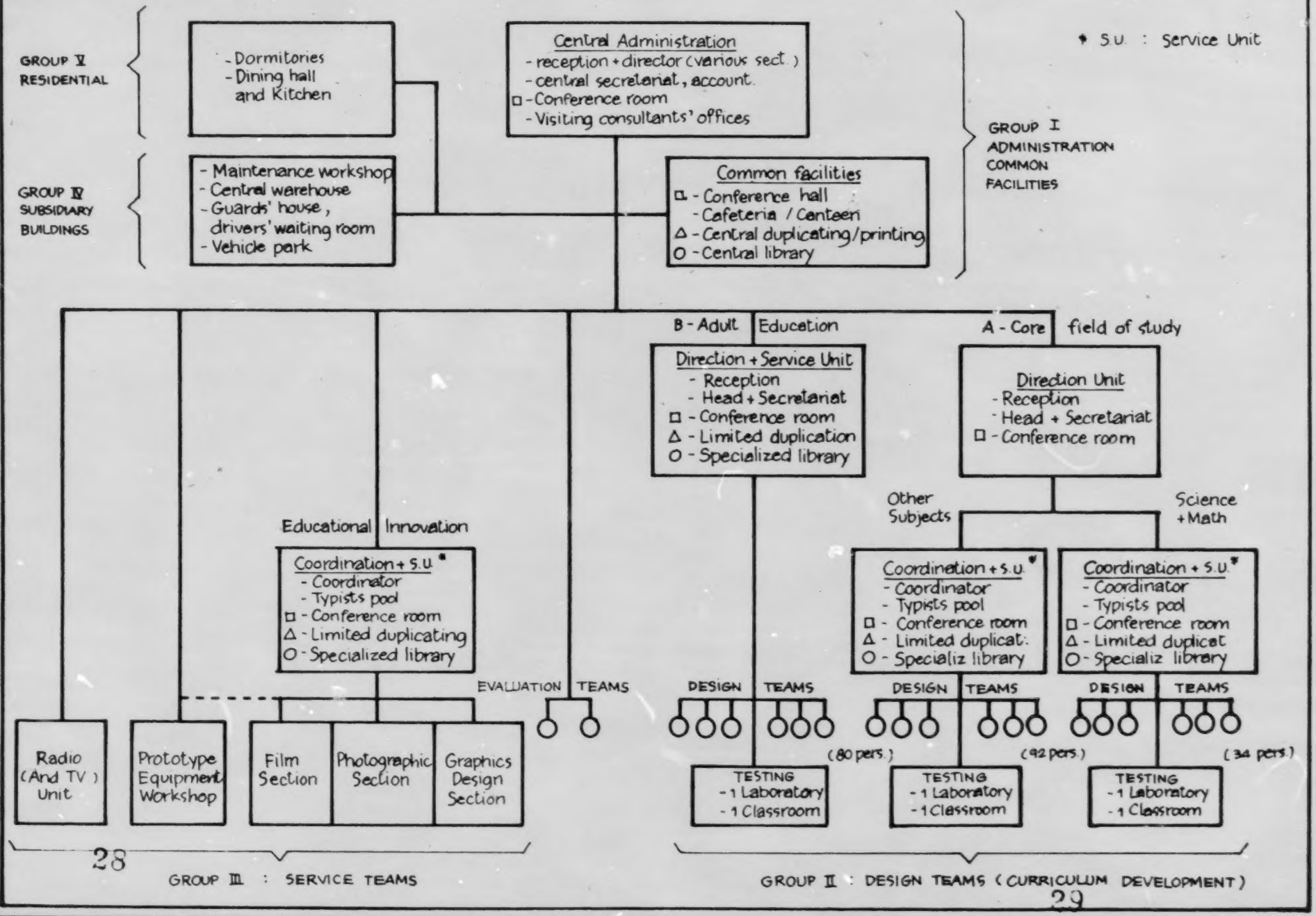
CDC ORGANIZATIONAL DIAGRAM : MODEL II (medium size CDC)

13



C.D.C. ORGANIZATIONAL DIAGRAM: MODEL III (big size C.D.C.)

14



and accountancy unit, and a conference room, and offices for visiting consultants. In principle, if good coordination is to be ensured, the CDC would have one budget and the General Director's Office would be responsible for all accounting and establishment procedures necessary for the operation of the Centre.

- Common facilities including a conference hall, a cafeteria or canteen which could possibly serve light meals, common duplication and printing facilities, and a common library and documentation centre.

Group II includes all units of the Centre dealing with curriculum development for in- and out-of-school learners (science and mathematics, other subjects, adult education, etc.) which would be organized in terms of functional design teams working on subjects or groups of subjects at the various levels (primary, secondary, etc.).

The work of the teams involves individual quiet work as well as working in pairs and groups with joint discussions, followed again by individual work. For certain subjects, individual work in offices will also be punctuated periodically with laboratory work. Thus accommodation for design teams has to include small meeting/conference rooms and small laboratories or workshops, for experimental work and research.

In addition, facilities for testing, as well as for pre-service and in-service training in curriculum development, are to be provided and sited in reasonably close proximity to the team working spaces. These facilities should include multipurpose laboratories spacious enough to accommodate training sessions within the laboratory, and classrooms with small, adjacent observation rooms.

Group III comprises a number of service teams or units working in specialized fields to support the curriculum development work of the whole Centre, namely:

- An evaluation team responsible for developing questionnaires, tests for trials in schools, which would allow for a coordinated evaluation feed-back and revision of the curriculum developed.

Curriculum centre design

- A unit equipped to deal with the technical aspects of educational innovations in the field of graphic and audio-visual aids and sub-divided into specialized sections such as Graphic Design Section (graphic work, calligraphy, preparation of manuscripts for printing), Photographic Section, Film Section.
- An experimental multipurpose workshop for prototype equipment development.
- Possibly a Radio Unit with script-writing teams and a recording studio for educational broadcasting (if TV activities are envisaged, great attention should be given to the costs involved; it would be advisable to include only a small studio, with the major activity in the field with portable equipment, in support of various aspects of curriculum implementation).

Group IV includes subsidiary service buildings such as: a small maintenance workshop, a central warehouse, a guard's house with drivers waiting room, and a vehicle park.

Group V hostel and eating facilities for people attending training sessions at the Centre should be considered only when there is no existing accommodation in the vicinity.

Variation of size/organization

With these common features in mind, one can discuss the problem of variations of organization between CDC's of differing size (refer to the diagrams).

Model I

In a relatively small scale CDC with a limited number of design teams it would be possible for the General Director, helped by some supporting staff (Deputy Director, Administrative Officer, etc.), to manage the Centre including its administration, contacts with the Ministry of Education, and the allocation of resources to the various units while, at the same time maintaining direct control of the activities of the curriculum development teams through periodical meetings with the heads of each team. On the other hand, given the small size of the Centre, the common library and duplication

pool would be sufficient and close enough to all buildings to serve all units efficiently.

In this case, all administrative functions and facilities as well as service facilities (duplication, library) could be concentrated in a single complex (Group I) with, maybe, the exception of the audio-visual and graphic unit which might require a small administrative nucleus, with a coordinator competent in specific technical matters, as well as facilities for limited duplication coupled with the Graphic Design Section.

Model II

With a larger number of design teams and additional units and facilities (Radio and TV, hostel facilities), the administrative burden would grow and take most of the General Director's time. Delegation of power is likely to be needed.

This might be done through the establishment of an administrative sub-unit which would deal with a number of matters regarding, for instance design team coordination and organization, and which would probably be better located within the design teams' building rather than in the central administration block (see diagram). This sub-unit would include space for clerical and typing services close to the Heads' Office and a conference room for the discussions the Head would have to hold with his staff. Although accounting would remain centralized under the General Director, one accounting officer might be required in the sub-unit for internal accounting purposes.

Decentralization is also likely to appear for some components of the 'common facilities':

- Common duplication and printing facilities would be needed for big runs, important documents and special work, but an additional duplication section would be established in the administrative sub-unit for small scale duplication on a continuing basis. This would require space for photocopying, photo stencil making, stencil

duplication, collation and stapling as well as storage space for paper and other materials.

- The same process would apply to the library. While the central library would grow in size and provide for extensive use of reference materials, - particularly in respect of concrete opportunities required for cross-unit utilization of materials - an additional small library for daily and continued reference use would be established within the administrative sub-unit, very close to the design teams.

Model III

The last diagram shows the extension of this 'duplication of units' in the case of a big CDC with a section dealing with adult education, and a larger number of design teams which would require new administrative sub-divisions (i.e. through the establishment of coordination and service units for science and mathematics, and for other subjects) and additional small duplication sections and libraries.

Even though new, administrative sub-units would have been established, the central administrative unit is likely to increase in size (compared with Models I and II) in order to meet the management requirements of such a complex organization.

It should be said once again that, although the development from 'Model I' to 'Model III' is logical, no one model represents a ready-made solution to be chosen as such. Careful consideration should be given to all specific conditions and administrative constraints in order to define clear and workable authority lines before making a final decision on this key structural problem. To make the point, suffice it to say that confused distribution of power and of competences could create administrative barriers which might prevent certain units utilizing the services of others, or of facilities supposed to be for common use. In such a case the final result would be an addition of separate bodies and institutions with overlapping functions and unnecessary duplication of facilities instead of a CDC able to carry out coordinated activities.

CHAPTER FOUR: GENERAL DISTRIBUTION OF STAFF AND SPACE

It has been underlined above that the general organization of a CDC will depend on its size. In principle the latter will result from the objectives assigned to the Centre, as, for example, whether it has to include supporting functions for educational broadcasting or not. But in practice the organization will also depend on the availability of financial resources for running the Centre (salaries, maintenance, etc.) and for building it (construction cost). Both relate to the total staff to be housed.

Thus, while developing the organizational scheme, and before going into too many details, it will be necessary to make a first global approach to the accommodation schedule in terms of staff and construction area, in order to check whether the project remains within the limits of what is financially possible.

Table 1 below, which gives the relationship between staff and construction area for each accommodation component of the proposed 'models', will be of some help in this first approach. It includes detailed figures because it reflects the study developed in the second part of the present guide, but at this stage one should be only concerned with the order of magnitude of the various components.

This first global approach is likely to make it necessary to revise some aspects of the organizational structure, planned initially and to lead to critical choices. The outcome of this iterative process will be a basis for the establishment of the first draft of the architect's brief which would include:

- a revised organizational diagram with a clear definition of the functions, duties, responsibilities and fields of competence of key personnel (Director, Deputy Director, Heads of Units, sections, etc.);
- a table similar to Table 1, but may be less detailed, which would give for each component the staff foreseen and the approximate construction area;
- global indications of cost constraints/limits;
- site and location if already known.

Then, within this framework, detailed accommodation schedules and first sketch plans for each sector can be worked out, using information included in the second part of the present study.

TABLE 1: DISTRIBUTION OF STAFF AND SPACE: 3 'MODELS'

Functional components	MODEL I		MODEL II		MODEL III	
	Staff	Area sqm.	Staff	Area sqm.	Staff	Area sqm.
I. ADMINISTRATION AND COMMON FACILITIES						
- Central administration	20	247	20	247	27	351
- Offices for visiting consultants	5	39	5	39	8	78
- Central library (reading room: 36-100 seats, collection: 9000 - 20000 books)	4	182	4	260	6	312
- Central duplication and printing workshop	5	104	5	104	10	156
- Conference hall (80-100 seats)	-	150	-	150	-	180
- Canteen (70-100 seats)	4	126	4	126	6	192
- Toilets	-	31	-	31	-	52
TOTAL I.	38	879	38	957	57	1321

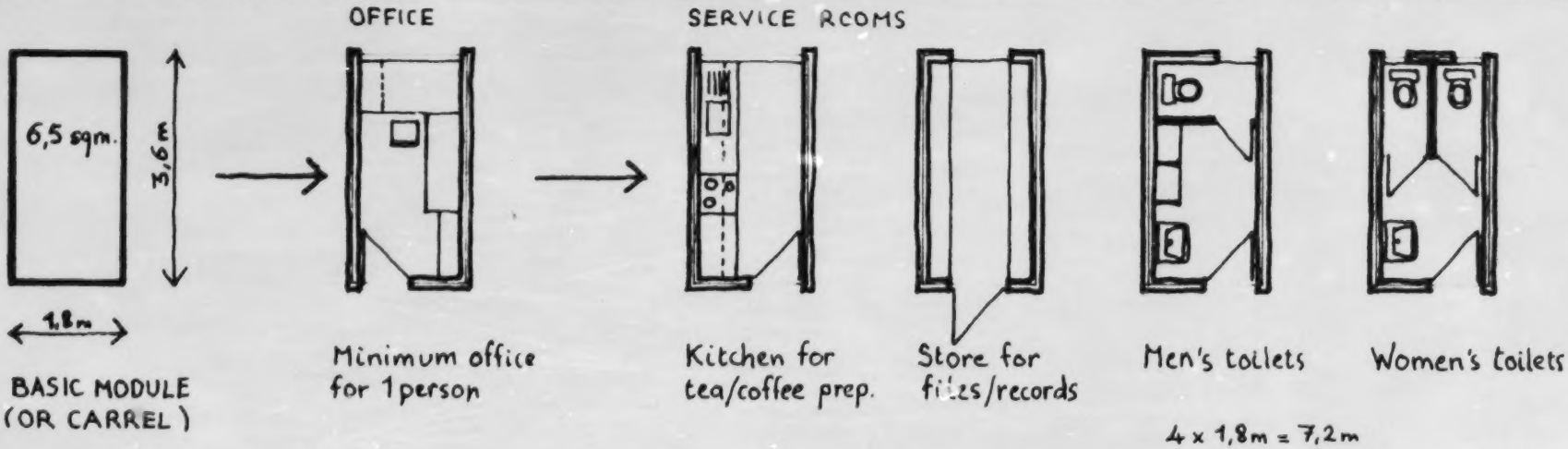
TABLE 1 (Continued)

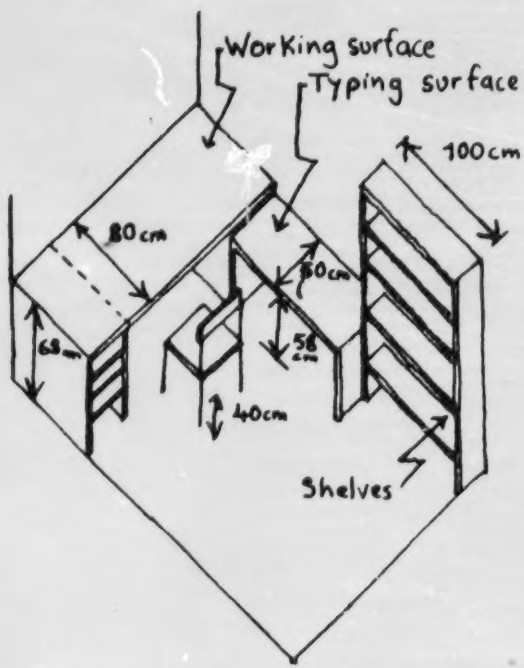
Functional components	MODEL I		MODEL II		MODEL III	
	Staff	Area sqm.	Staff	Area sqm.	Staff	Area sqm.
II. DESIGN TEAMS						
A. CORE FIELD OF STUDY						
1. Director unit (+ service)	-	-	-	221	6	130
2. Science and mathematics:						
- Coordination and service unit	-	-	-	-	7	192
- Design teams, primary level	8	104	8	99	8	117
- " " , lower sec. level	12	143	10	113	12	166
- " " , upper sec. level			10	113	14	185
- Facilities for testing and in-service training	2	143	2	143	2	221
- Utility rooms	-	26	-	52	-	52
Sub-total	22	416	30	520	43	923
3. Other subjects:						
- Coordination and service unit	-	-	-	-	7	182
- Design teams, primary level	16	169	18	190	18	209
- " " , lower sec. level	32	377	26	295	38	448
- " " , upper sec. level			24	256	36	435
- Facilities for testing and in-service training	-	78	-	78	2	221
- Utility rooms	-	52	-	52	-	104
Sub-total	48	676	68	871	101	1599
SUB-TOTAL A.	70	1092	107	1612	150	2652
B. NON-FORMAL, ADULT EDUCATION						
- Direction and service unit					9	221
- Design teams					80	858
- Fac. for testing and training						78
- Utility rooms						104
SUB-TOTAL B.					89	1261
TOTAL II.	70	1092	107	1612	239	3913

TABLE 1 (Continued)

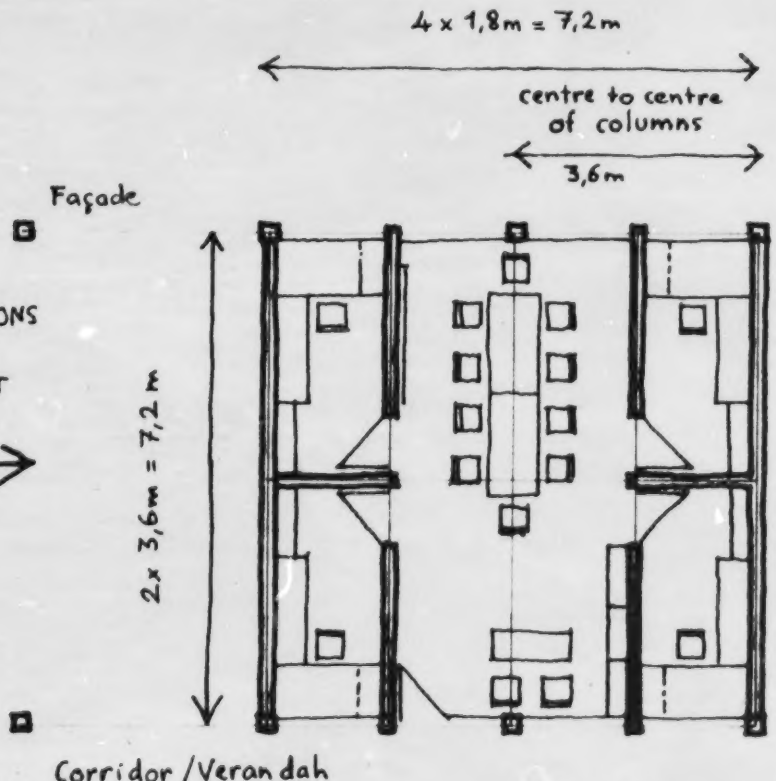
Functional components	MODEL I		MODEL II		MODEL III	
	Staff	Area sqm.	Staff	Area sqm.	Staff	Area sqm.
III. SERVICE TEAMS						
- Evaluation unit	4	65	8	104	12	143
- Education-innovation unit (Graphics; Photo, Film, with a coordination sub-unit)	16	325	20	455	28	533
- Prototype equipment workshops	15	415	15	415	15	415
- Radio Unit	-	-	22	364	22	364
- Utility rooms	-	26	-	26	-	52
TOTAL III.	35	831	65	1364	77	1507
IV. SUBSIDIARY BUILDINGS						
- Maintenance workshop	3	104	3	104	4	143
- Central warehouse	2	104	2	104	2	143
- Guards house with drivers' waiting room	5	39	5	39	7	52
TOTAL IV.	10	247	10	247	13	338
V. RESIDENTIAL						
- Dormitories (minimum 2 dormitories for 32-64 persons)	-	-	6	160	8	320
- Toilets and showers	-	-		75		130
- Dining hall, lounge, laundry, kitchen	-	-		125		240
TOTAL V.	-	-	6	360	8	690
GRAND TOTAL (without circulation area)	153	3049	226	4540	394	7769
Circulation (assumed 25% of figures above)		761		1135		1942
GRAND TOTAL (with circulation area)		3810		5675		9711

PART TWO
PROJECT DEVELOPMENT PROCESS AND ELEMENTS OF ACCOMMODATION





MODULAR DIMENSIONS APPLIED TO A DESIGN TEAM UNIT OF 4 PERSONS



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CHAPTER FIVE: DEFINITION OF A TYPOLOGY

The architectural programme of a CDC includes a variety of rooms or groups of rooms. The buildings, on the other hand, will have to be based on some dimensional criteria: economical and practical spans of beams or slabs defining the location of columns or bearing walls, width of building, etc. which obviously should match the dimensioning of the architectural programme components in meeting their functional requirements.

There is thus a need to define some dimensional, common denominator-module or carrel - on which complex grouping of functional spaces, as well as the modular dimensions of the entire building complex could be based.

Curriculum development is undertaken by teams of specialists. Depending on what is being developed, the team may be large or small. The implication of this for building is that a variety of spaces are needed for teams of different sizes. Within each team space, there have to be smaller spaces or carrels for individual work or work in pairs or in larger groups and a conference space where, at a moment's notice, the team can gather together to discuss some particular problem that has arisen.

The basis of the team space is thus a minimum individual workspace or carrel module which is illustrated in drawing No. 1. The dimensions proposed are 3.6m x 1.8m. This provides space for a standard work table, an auxiliary table for material or typing, as desired, a standard shelf unit and a chair. It may be added that a module provides adequate minimum space, not only for a curriculum development specialist, but also for a clerk, for a typist, for a storekeeper's office, for a laboratory technician, etc. Minimum service rooms such as storage for records, toilets, etc. can also be accommodated within the same modular unit or carrel. Two modules wide (= 3.6m) give the centre-to-centre dimension of columns for the structural frame along the length of the building, while two modules deep (= 7.2m) give the depth of the building from the facade to the corridor or verandah.

Curriculum centre design

Drawings No. 2 to 4 show through simple examples, how such a typology could be developed. Applications of this principle to the various components of the architectural programme (Administration, design teams, etc.) are illustrated in the subsequent chapters.

The problem of future change

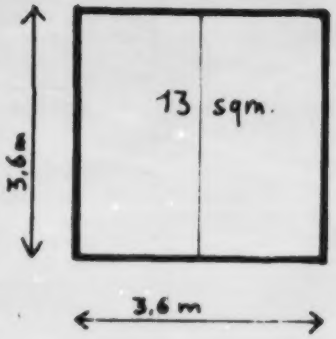
Curriculum development is by no means static. The subject area will change from time to time, new areas may be explored, new combinations of subjects result in new curricular needs. The number and sizes of teams will change.

Although the carrel will remain the basic unit for the individual, grouping of carrels will change with the passage of time. How to provide for future change is thus a serious question.

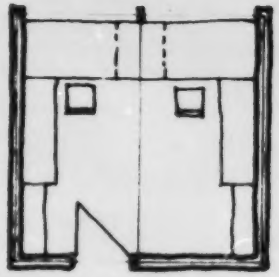
Standardization of the building through the use of a modular grid leading also to standardization of furniture is a first answer. Obviously it will be easier to reallocate, for instance, to a team of 8 persons, spaces initially planned for two teams of 4 persons, if one can find in all units similar rooms and furniture. But this does not provide the ideal solution.

Beyond simple standardization of fixed units, the use of a structural frame of columns and beams instead of bearing walls would, in principle, improve the possibilities of adapting the building to new needs by allowing the re-location of internal, non-load bearing partitions. But if these internal partitions are made of bricks or concrete blocks they are not likely often to be demolished and rebuilt, except in case of major change in functional requirements.

Thus, in the absence of a methodology for predicting organizational change in relation to building adaptability, it would be advisable, if it is possible within the cost limits, to build each carrel of demountable light partitions so that they can be combined and recombined to match a variety of desired team sizes or removed completely so that the space vacated can be put to other - presently unforeseen - use.

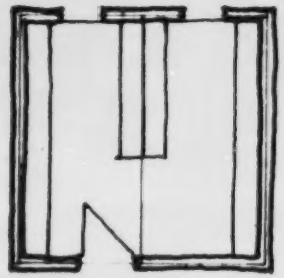


OFFICES

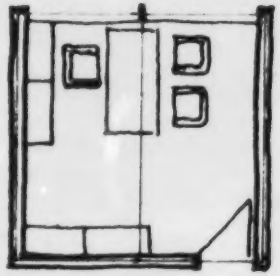


Office for 2 persons

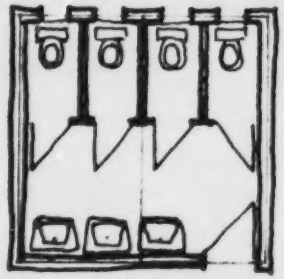
SERVICE ROOMS



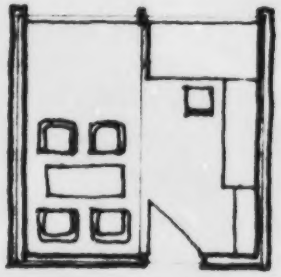
Store / Records



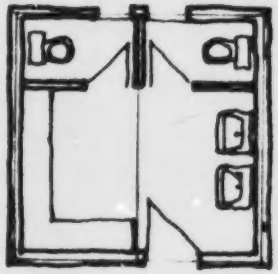
Office for team leader



Women's toilets

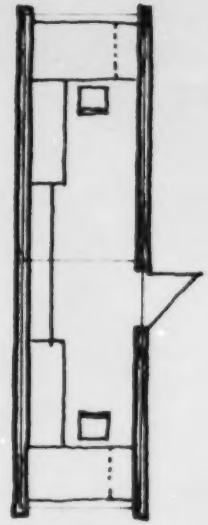


Office (variant)



Men's toilets

OFFICES



Office for 2 persons

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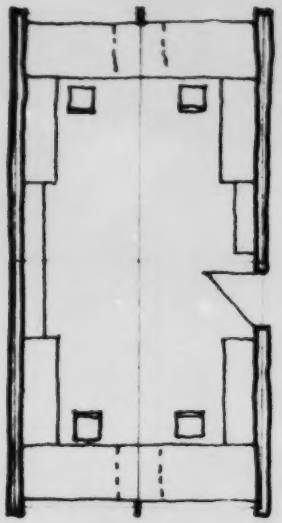
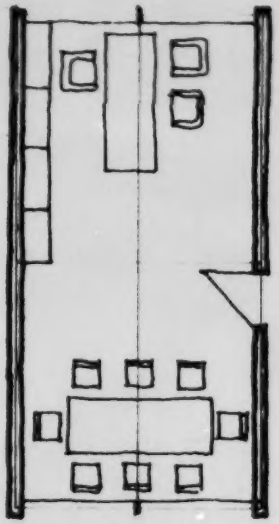
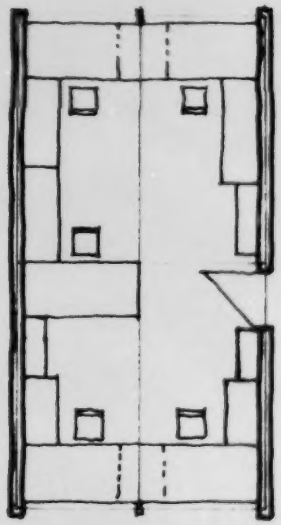


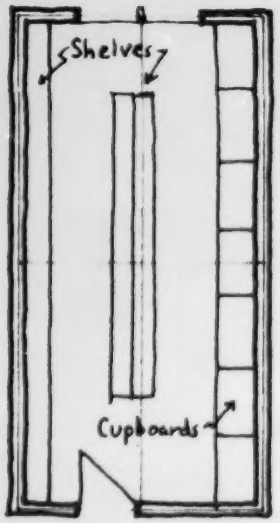
Office for 4 persons



Director



Secretariat



General store

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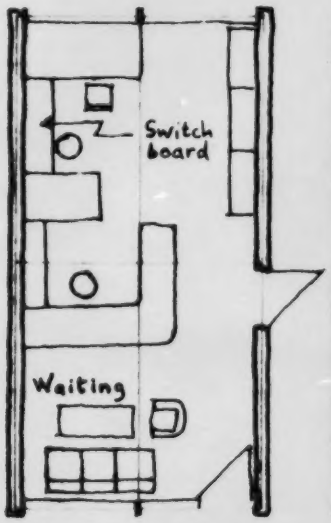
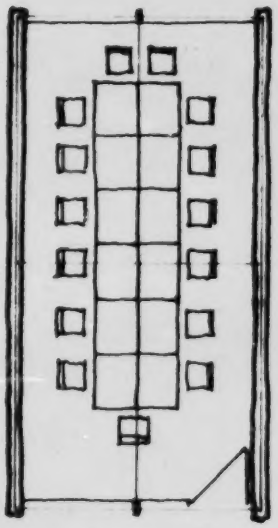


Reception, Telephone



Meeting room for 12-16 persons

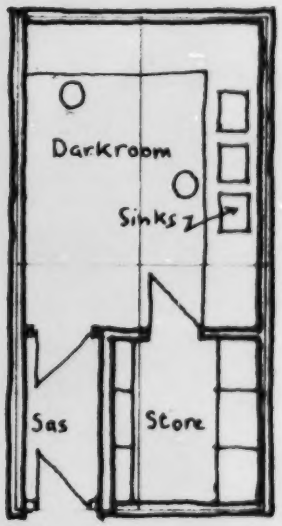
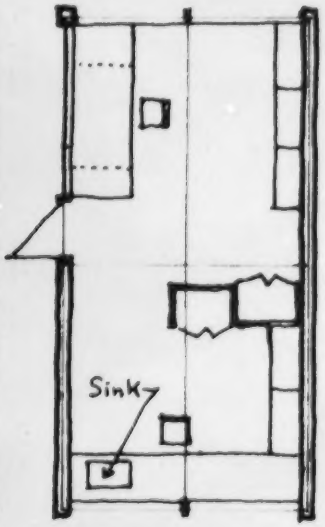
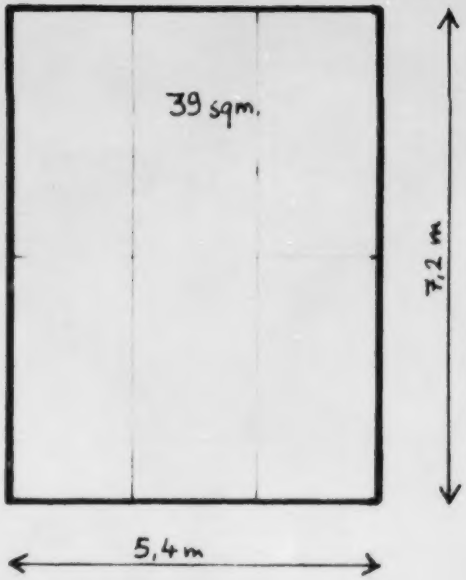
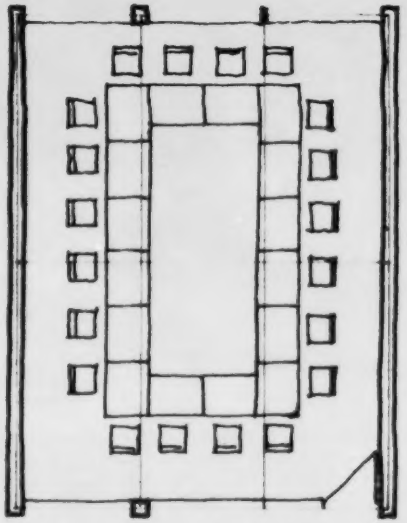


Photo Laboratory with store

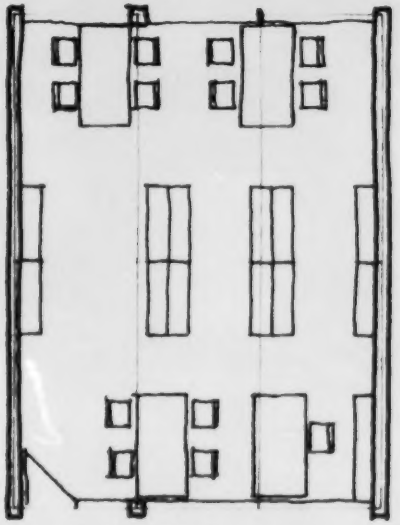


Librarian with workroom

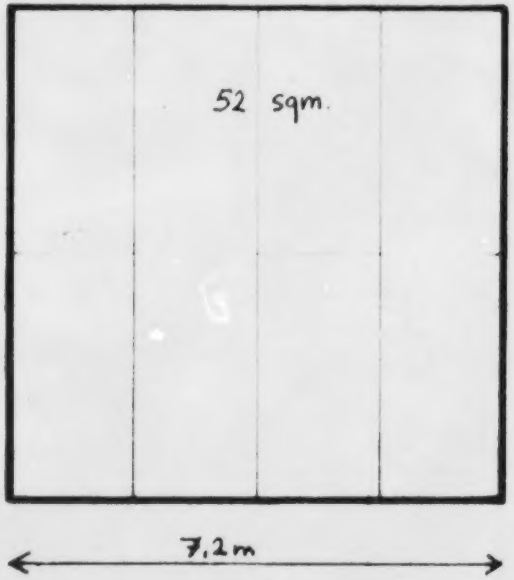


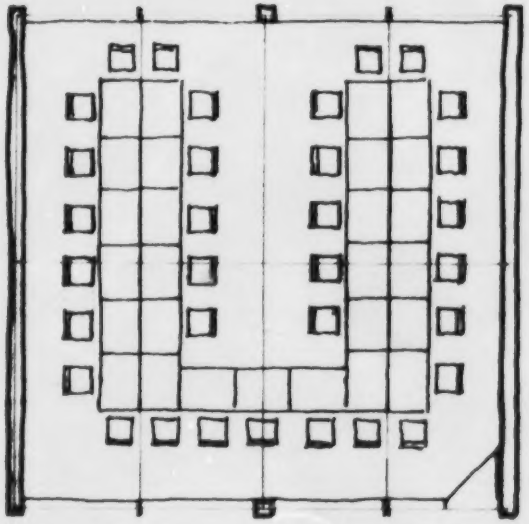


Conference room for 20 persons

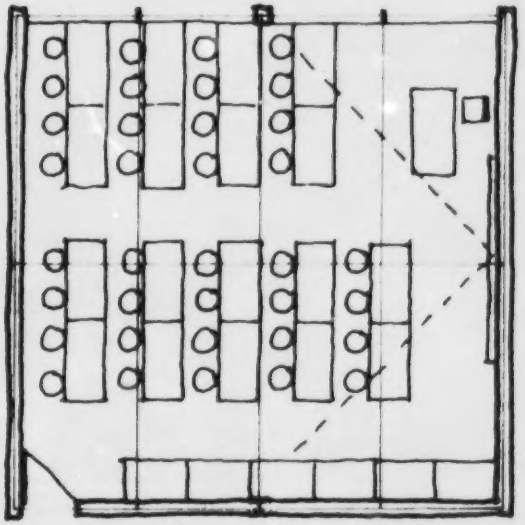


Specialized library
(12 seats / ~ 1000 books)





Conference room for 30-35 persons



Test classroom for 36 students

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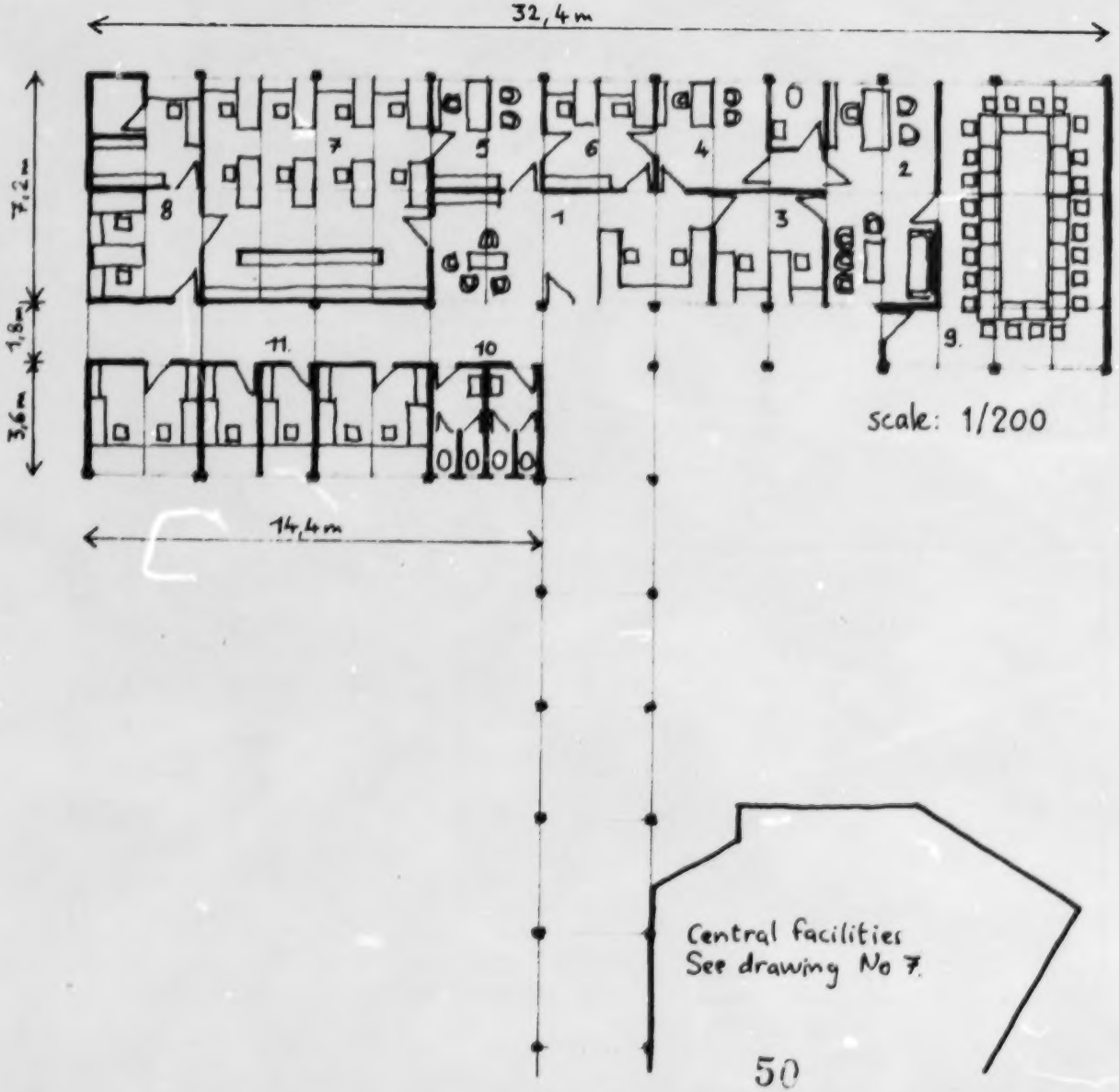
Schedule of accommodation

	Staff	Sqm.
1.- Reception, tel.	2	32,5
2.- Director's office (with w.c)	1	32,5
3.- Direction stenogr.	2	13
4.- Deputy Director	1	13
5- Adm. Officer	1	13
6.- Stenographers	2	13
7.- Central secretariat	8	52
8.- Accountancy unit (with strong room)	3	26
9.- Conf. room		52
10.- Toilets		13
11.- Offices for visiting consultants	5	39
Total	25	299



CHAPTER SIX: CENTRAL ADMINISTRATION

Drawing No. 5 gives the detailed schedule of accommodation, the typology and a proposal for grouping for the central administration of a small to medium size CDC (Model I or II). Drawing No. 6 gives the same elements for the central administration of a bigger Centre (Model III).

The functions of the central administration have been discussed above, along with the problem of decentralization of certain administrative tasks and in considering the proposed accommodation, it should be kept in mind that there are additional administrative facilities located in other units (refer to the organizational diagrams and explanations of Chapter Three).

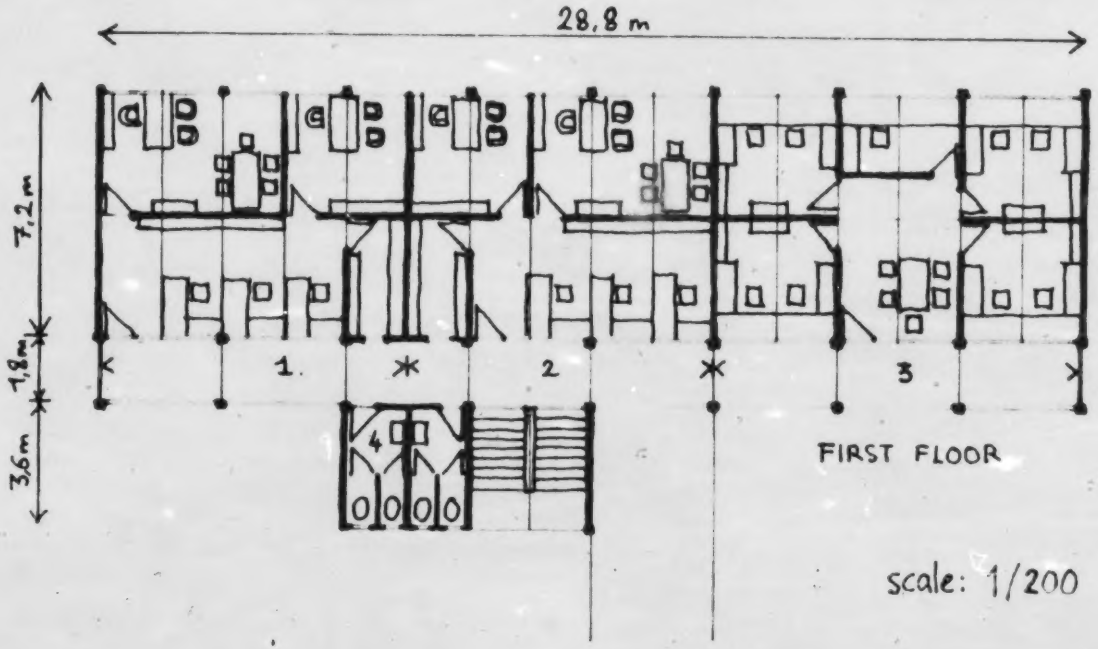
In this perspective, within the central administration, there should be no important variations in the size of elements such as reception, central secretariat, central accountancy or conference room. But variations would occur in the number of assistants the Director would need to perform his tasks. This could lead, as illustrated in the case of Model III, to the establishment of some sub-sections (i.e. for academic or administrative affairs) to which the General Director would delegate some of his responsibilities. Each one of these sub-sections could be composed of one assistant and a small secretariat.

Accommodation for visiting consultants could be, in principle, located either in the design team complexes or in the central administration building, as suggested here. The latter solution presents some advantages. First, visiting consultants may have to advise on general matters that do not relate directly to the specialized field of study of the design teams. Secondly, the design team group is likely to have a changing staff pattern leading to frequent re-allocation of spaces which means that the availability of accommodation for the occasional presence of visiting consultants would be difficult to ensure.

Schedule of accommodation

	Staff	Sqm.
First floor:		
1- Section for academic affairs		
· Head's office		
· Assistant's office	5	65
· Typists (3) / Records		
2- Section for admin. affairs (detail as above)	5	65
3- Visiting consultants	8	78
4- Toilets		13
Total first floor	18	221
Ground floor:		
1- Reception, telephone	2	32,5
2- Director's office (with wc.)	1	32,5
3- Deputy Director	1	13
4- Stenographers	2	13
5- Central secretariat	8	52
6- Accountancy unit (with strong room)	3	26
7- Conference room		52
8- Toilets		13
Total ground floor	17	234
Total central adm	35	455

52



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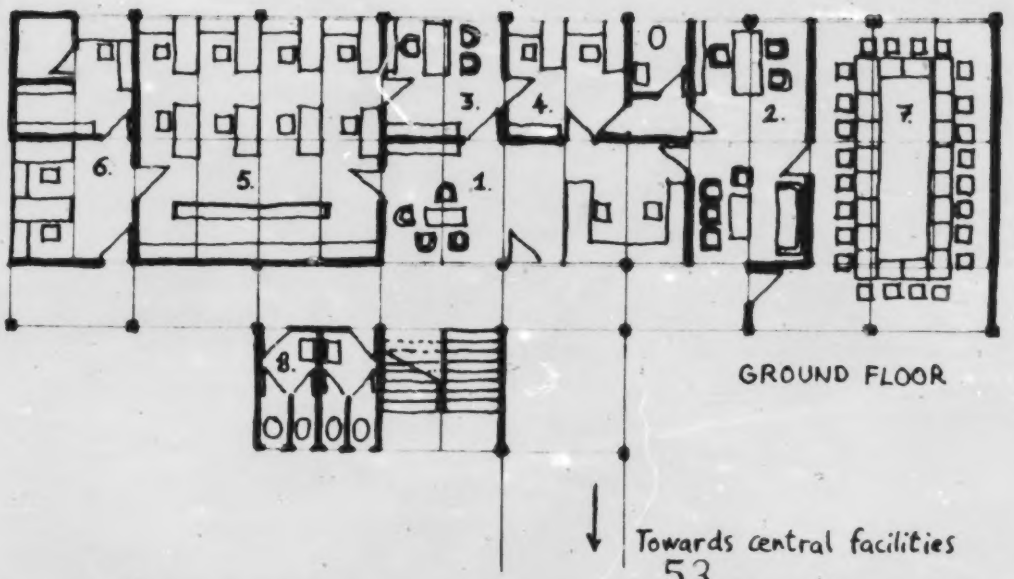

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CHAPTER SEVEN: COMMON FACILITIES

Common facilities including the central library, the central duplication and printing workshop, the conference hall and a cafeteria or canteen might be grouped together, as shown in drawings No. 7 and 8 in order to constitute a pool of facilities in which the possibilities of utilization of each component would be enhanced by the close proximity of the others.

With such a grouping, the organization of training sessions for key personnel of the in-service and pre-service training programmes would be easy with successive periods as desired without waste of time. The following is an example of part of a training sequence: conferences in the main hall, break time in the cafeteria, documentation research and study in the library.

The location of the central printing workshop within the same complex would allow for document preparation and printing in close connection with the development of the sessions and possibly with the participation of the trainees.

Another important aspect of the suggested layout is that it would allow for an extension of each component according to new needs.

Central library

The common library and documentation centre servicing all units of the CDC as well as in-service and workshop sessions at various times, needs to be large enough for the purpose.

Space for self-study and quiet reading is essential and should be dimensioned keeping in mind the role of the smaller libraries for daily reference use, dispersed within the design team units (refer to Chapter Three above). With about 40 to 70 reading places (Model I/Model III) as shown in the drawings, the library would allow for 1/3 to 1/4 of the personnel involved in educational research (design teams and service teams personnel) to be seated in the library at the same time.

Curriculum centre design

The number of books to be accommodated would vary according to a number of factors among which the acquisition budget would be most important. Examples below show accommodation for some 10,000 to 20,000 volumes.

With the possibilities of linking up with international documentation services such as ERIC, IBE, the Unesco Regional Office, from the very beginning, activities involving a microfiche collection would need to be started. Thus space for both reading and making microfiche as well as special storage facilities would be needed, in addition to the librarians' workrooms and a small office for the preparation of abstracts.

If the printing workshop is adjacent to the library, as suggested here, a study of the possibilities of sharing certain facilities such as the book binding and repair room, the photo laboratory etc. should be made, in order to ensure maximum utilization of expensive equipment.

Central duplication and printing workshop

Two important things have to be remembered.

First, the fact that mass printing of textbooks is not to be included within the field of activity of a CDC: only duplication and printing on a scale required for field trial, evaluation and pilot use.

Secondly, in dimensioning the central workshp, it should be kept in mind that additional facilities for small scale duplication would be established within the design team complex (refer to Chapter Three above).

Thus, careful consideration should be given to the definition of the tasks to be centralized, i.e. duplication and printing for runs that exceed 200 sheets or for documents that exceed 25 sheets, production of 'masters' for offset printing, photographic and other plate making.

Along these lines, in addition to the standard facilities and machines of any duplication pool, (paper and printed document storage, stencil duplicators, collating and stapling machines, guillotine) the central workshop should be equipped with a number of special rooms for specific tasks such as: photo laboratory,

composition room with glass table, book binding section, which could also be utilized, as has been said above, by the central library.

Conference hall

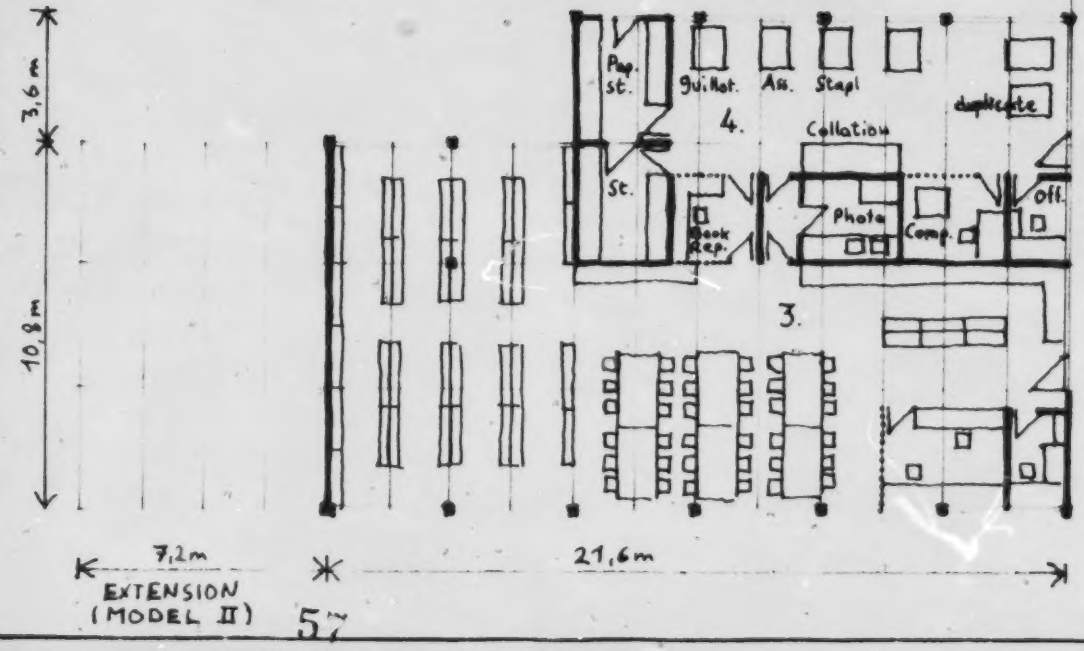
For large group meetings or conference activities, a common conference hall for 80 to 100 persons is required, with facilities for projection, sound amplification and recording. A service room would be needed to facilitate work during conferences, such as to store and distribute documentation to participants. This may be attached to the projection, sound control and tape recording room.

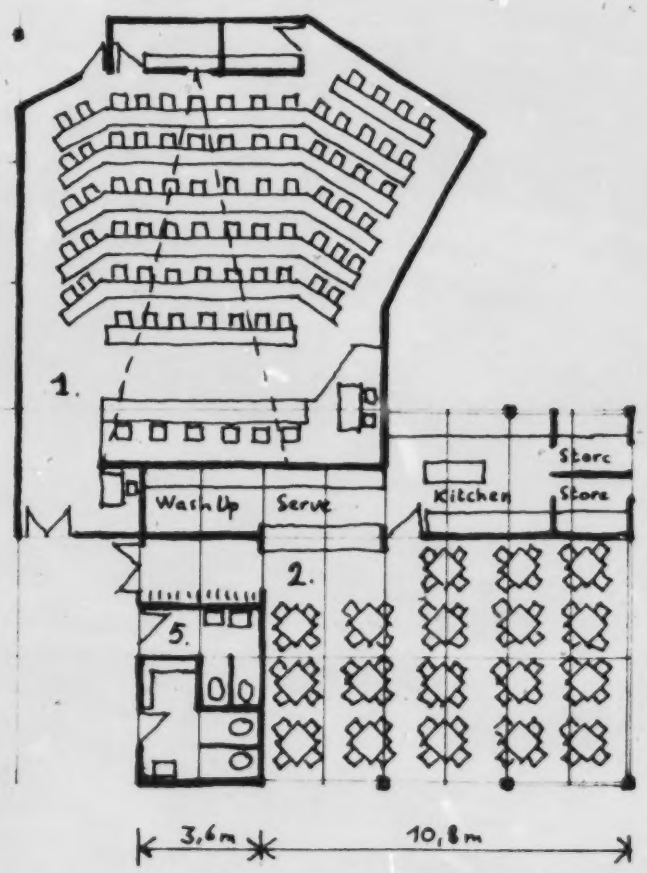
Cafeteria - Canteen

This space should be large enough to accommodate, for break time/coffee time, approximately the number of people attending meetings in the adjacent conference hall, and possibly include a small kitchen for serving light meals; this would depend on whether hostel facilities with attached dining room have been included or not in the programme.

Schedule of accommodation

	MODEL I Staff	MODEL I Sqm.	MODEL II Sqm
1.- Conference hall (80 seats with conference tables)		150	same
2.- Cafeteria (72 seats) with kitchen - preparation	4	126	same
3.- Central library (36 seats/10,000 books) or 50 seats/15,000 books)	4	182	- 260
4.- Central duplic. - printing workshop	5	104	same
5.- Toilets		18	same
	13	580	658





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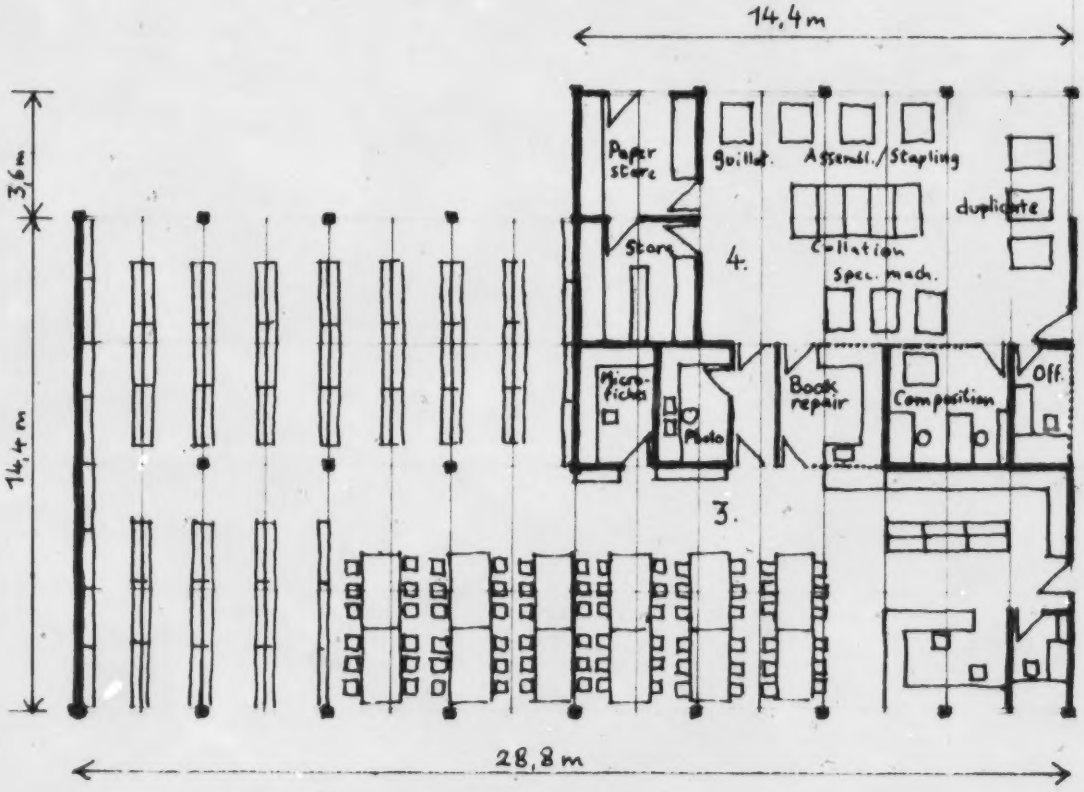
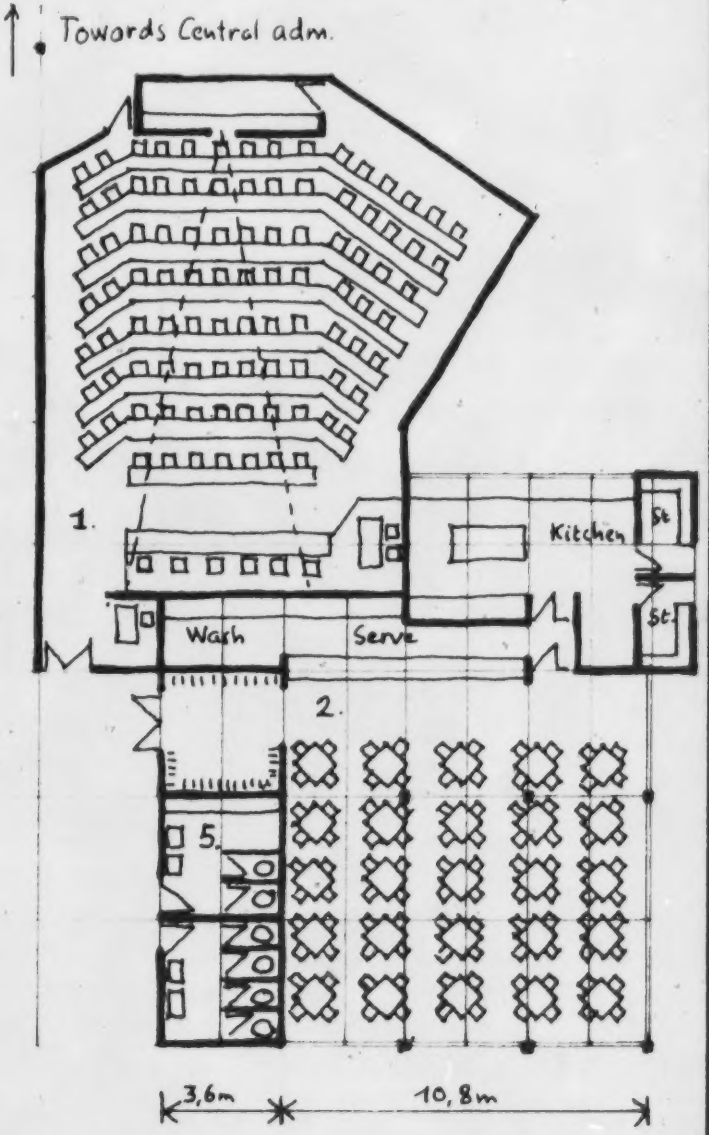
scale 1/200

Schedule of accommodation

	Staff	Sqm.
1.- Conference hall (100 seats with conf. tables).		180
2.- Cafeteria (100 seats) with Kitchen - preparation	6	192
3 - Central library (72 seats/20,000 books)	6	312
4.- Central duplicat.-printing workshop	10	156
5.- Toilets		26
Total	22	866



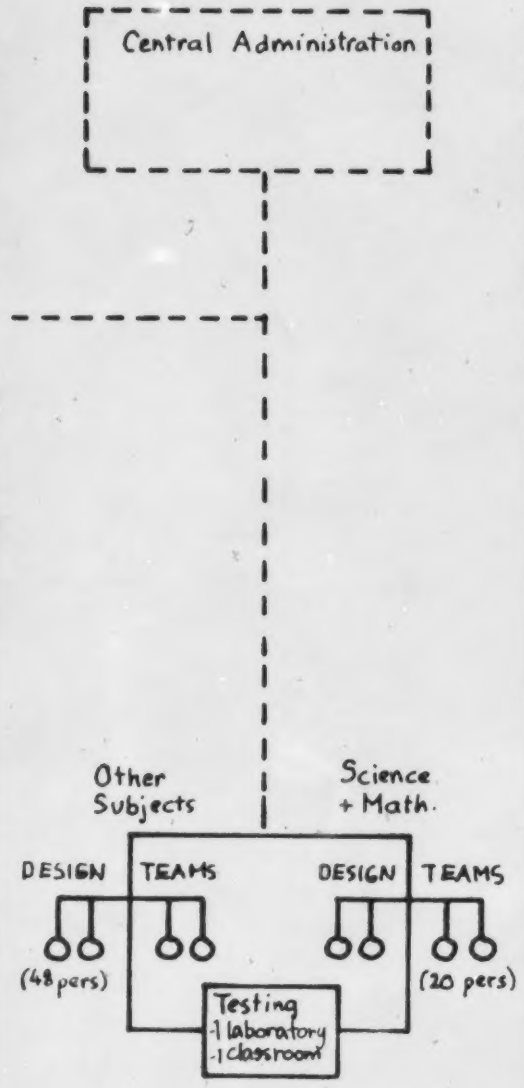


Scale 1/200

GROUP II - DESIGN TEAMS : COMPARISON OF THREE POSSIBLE ORGANIZATIONAL DIAGRAMS

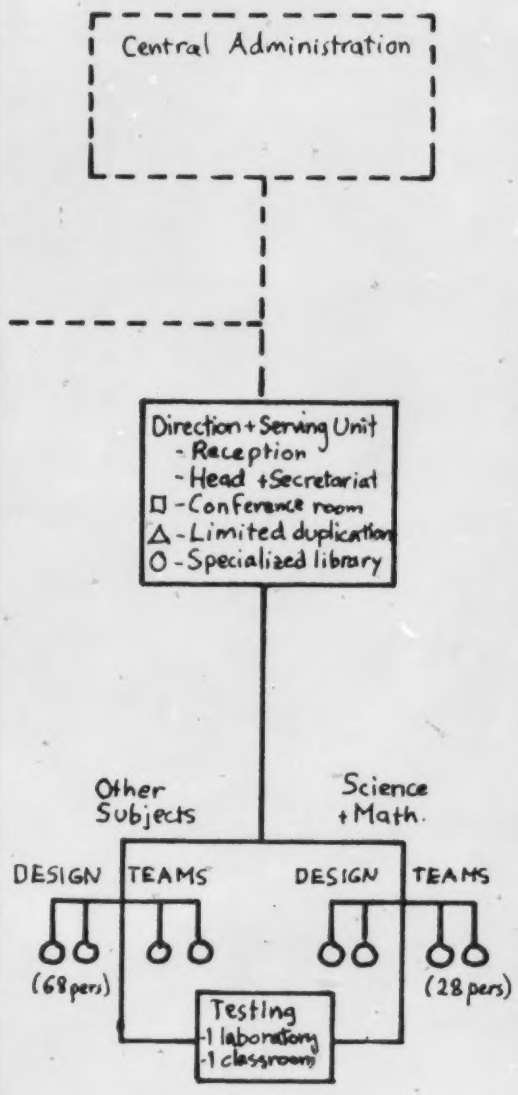
38

MODEL I

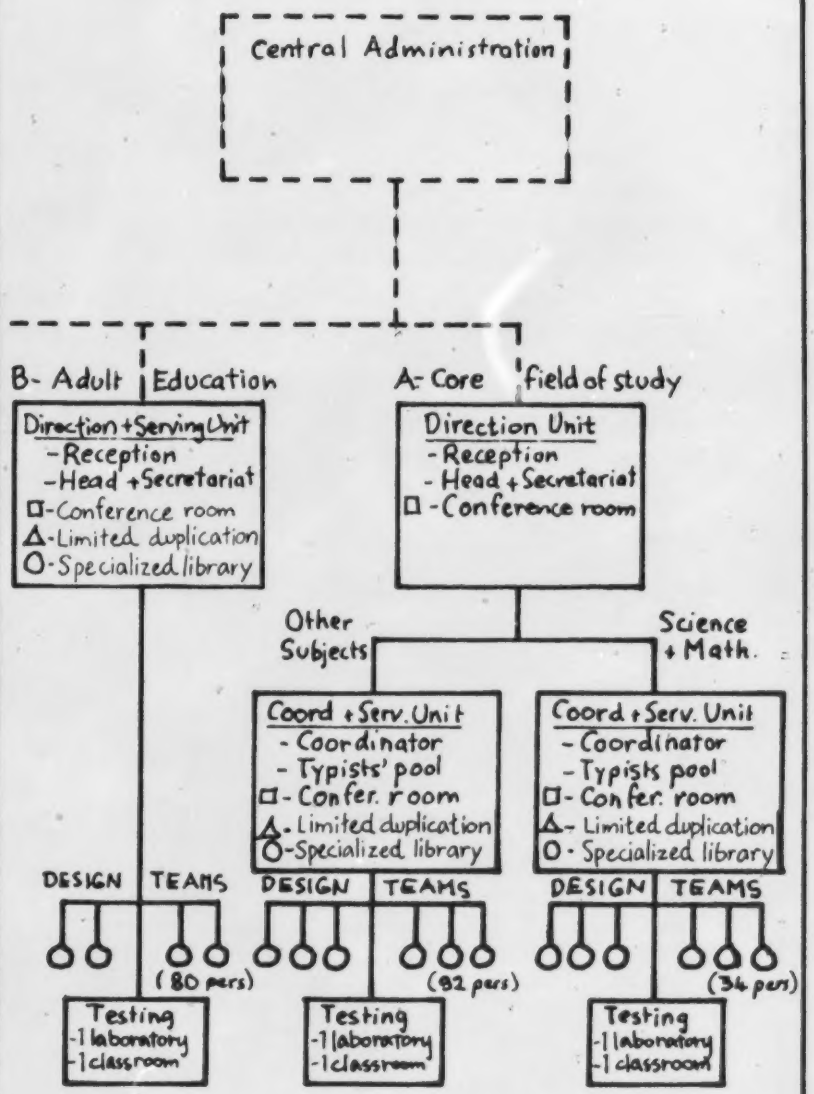


61

MODEL II



MODEL III



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CHAPTER EIGHT: DESIGN TEAMS

The establishment of the design teams' accommodation schedule cannot be based only on an estimate of the total number of curriculum developers which had been considered sufficient for a first approach (refer to Chapter Four). Various aspects will need to be studied in detail before defining the final schedule of accommodation. They include:

i) a clear definition of the general administrative organization of the complex;

ii) a detailed breakdown of the staff of the design teams, taking into account the subjects on which people would work as well as the educational level to which their research would apply (primary, lower secondary, upper secondary, etc.);

iii) the development of a typology (sketch plans) which would show the users what range of possibilities they have for accommodating the teams;

iv) a decision on the most suitable grouping of staff based on ii) and iii) above, which would lead to the establishment of the final schedule of accommodation.

i) Administrative organization

In the following page the possibilities of organizing the grouping of design teams which had been suggested earlier, can be compared. In principle, key decisions on this point should have been made already in the first phase of the study (refer to Chapters Three and Four). But a more detailed approach to composition of the design teams is likely to lead to revision of certain aspects, such as lines of authority, coordinators role and field of competence, etc. which might lead to other groupings/composition of "Coordination units", than those initially planned.

It might appear for instance that in the case of a big centre (Model III) the curriculum designers should not be sub-divided into two main groups as suggested in the diagram (science + math/other subjects) but into three groups i.e. science + math, pre-vocational, other subjects, each one of these general fields of study requiring one head or senior organizer who would perform specific coordinating and administrative functions and might need a small secretariat and some other facilities (conference room, central filing, etc.).

Or in other cases, coordination might appear more suitable by level of education (primary, lower secondary, upper secondary).

These are nothing but examples, the purpose of which is to show the kind of questions which have to be raised and studied in the light of the specific conditions of a given country.

ii) Staff of the design teams

Table 2, opposite, suggests a way of detailing the allocation of the personnel of the design teams by subjects and level of education.

The list of subjects, which may vary, somewhat from country to country, as well as the numbers of staff, have been based on information collected in existing CDC's.

The differences between Model I to III are linked to various factors including:

- the extension of the CDC field of study (to adult education or possibly to vocational education which has not been illustrated here);
- the resources available which could permit, or otherwise, a differentiation of the teams by level of education and allow an expansion of the staff.
- the timing of the studies: if it is decided in a given country to carry out educational reform simultaneously at all three levels of education, more curriculum developers will be needed than in the case of a step by step process where the same team can move successively from one level to another.

GROUP II/TABLE 2 : DESIGN TEAMS STAFF FOR	MODEL I		MODEL II			MODEL III		
A. CORE FIELD OF STUDY								
Direction unit (Head, assistant, 4 typists + personnel for duplication and library when included)	-		9			6		
Science and math : Coordination and service unit (coordinator, 3 typists, 3 persons for duplication and library)	-		-			7		
	Primary	Secondary	Primary	Lower Secondary	Upper Secondary	Primary	Lower Secondary	Upper Secondary
Design teams :								
- Mathematics	4	4	4	4	4	4	4	6
- Science (Physics, Biology, Chemistry)	4	8	4	6	6	4	8	8
	20		28			34		
Laboratory technicians (lab. for in-service training)	2		2			2		
Other subjects : Coordination and service unit : idem coordination unit for science and mathematics	-		-			7		
Design teams :								
- Languages	4	4	4	2	2	4	4	4
- Cultural inheritage	-	-	-	-	2	-	-	4
- Social studies (economy, history, geography)	4	4	4	2	6	4	4	8
- Hygiene, health, physical education	2	-	2	2	-	2	2	-
- Aesthetics (Music, drama, Human steam)	2	4	2	3	3	2	4	4
- Community and management (accountancy, adm., econ., secr.)	-	4	-	2	2	-	4	4
- Practical arts (home economics and science)	4	4	4	3	3	4	4	4
- Agriculture	-	4	-	3	3	-	4	4
- Industrial arts	-	4	-	3	3	-	4	4
- Population education	-	4	-	6	-	-	8	-
- Religious studies	-	-	2	-	-	2	-	-
	48		68			92		
Laboratory technicians (lab. for in-service training)	-		-			2		
SUB-TOTAL A.	70		107			150		
B. ADULT EDUCATION								
Direction unit (Head, assistant, 4 typists, 3 persons for duplication and library)	-		-			9		
Design teams :								
- Curriculum and math. development	-		-			24		
- Women's education	-		-			24		
- Training and field operations	-		-			16		
- Survey and evaluation	-		-			16		
SUB-TOTAL B.	-		-			89		
TOTAL DESIGN TEAMS STAFF	70		107			239		

It should also be pointed out that the number of people per team will fluctuate according to the steps of curriculum development. For a given subject, less people will be needed in a phase of evaluation than when the bulk of the curriculum development work is underway. This, of course, is not expressed by the Table. In fact, the figures used for programming must be a kind of average, the actual number of persons per team fluctuating above or below the figure.

This phenomenon is also of some importance for design. On the one hand the total capacity of the design teams units should be such as to allow for these inevitable periodical variations. And beyond that more important future change could be met in using demountable light partitions as suggested in Chapter Five above.

iii) Typology

The definition of a typology of the various units is not only a necessary step in the project development from the architect's point of view. It will also help the users in defining their programme: to visualize the range of possibilities among which they have to choose will make them react much better than a mere list of rooms.

Administrative units

Drawings No. 9 and 10 give examples of accommodation for decentralized administrative units specialized libraries and small duplication sections mentioned in the preceding Chapters.

Design teams units

Drawings No. 11 to 15 show examples of units for teams from two to twelve curriculum developers working in fields requiring no workshop or laboratories (languages, mathematics, etc.).

The process of curriculum development which entails on the part of the member of the teams a succession of periods where team work and group discussions follow individual work, has already been mentioned above. It can be estimated that group work represents about 1/3 of the time.

However, in almost all the CDC visited there was no space available for these small meetings.

The units proposed here should improve such a situation by grouping the various offices for individual work around a common meeting room which could be used for the access to the small offices and could also include some storage and a small library for the team.

Alternative layouts are shown regarding the location of the meeting room, which should be selected according to local climatic conditions and orientation of buildings. In countries such as Nepal where winter is cold, one would prefer layouts where most of the permanently used study rooms would be on the 'hot' side of the building, catching sun in all seasons whereas the less frequently used meeting rooms would be located on the 'cold' side. In hot/humid climates layouts allowing for a cross ventilation of the meeting rooms would be preferred.

It should be noted that small units give a less economic area/person ratio than big ones, with a difference ranging from 13 sqm. (144 sft) to 8.7 sqm. (96 sft). This should be kept in mind in making the final decision on team grouping.

Drawings No. 16 and 17 show examples of units for disciplines such as physics, chemistry, biology, earth sciences, agriculture, industrial arts or home science, requiring the periodical use of a small laboratory or workshop/workroom. Given the cost of these additional facilities much attention should be given to questions such as: does a small team really need its own small laboratory (Drawing No. 16)?; or can the laboratory be shared by two teams (Drawing No. 17)?

Such units may best be established on the ground floor for safety, ease of transport of equipment and chemicals, storage, and equally important for providing easy access to the external environment ('garden' space integrated with earth sciences, agriculture or biology).

In-service training facilities

Drawings No. 18 and 19 show examples of laboratories and test classrooms

for training sessions.

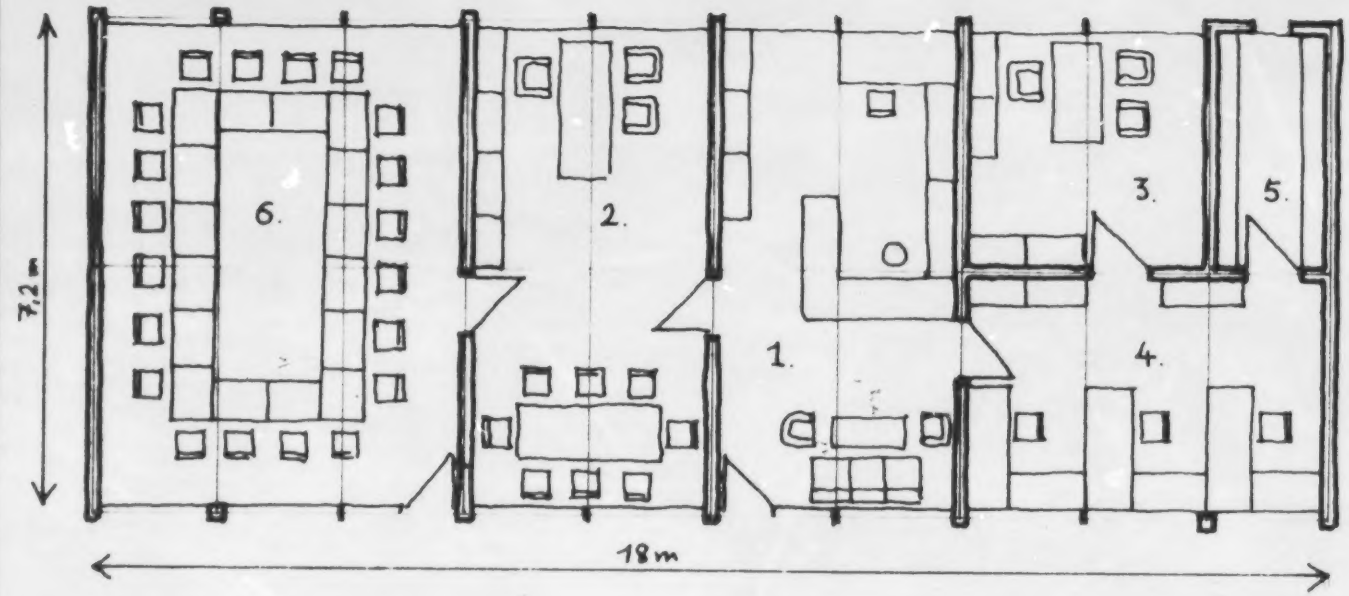
One or two multipurpose laboratories with work space for intensive in-service education in curriculum development within the laboratory would enhance the capacity of the relevant teams, particularly for cross-discipline activities, and in integrating experimental work with discussion.

One or several classrooms would be also needed for work sessions between curriculum developers and outside personnel such as master teachers, supervisors, teacher educators, etc. and for testing of curricular or learning sequences with the learners themselves. A one-way mirror separating the classroom from a small observation chamber next to it, with interlinking microphone/loudspeaker connections, would be most useful for this purpose as well as for action research purposes important in curriculum development, such as in determining cognitive development of children.

iv) Grouping of design teams and schedule of accommodation

Once the breakdown of the design teams per subjects/level of education and the typology is defined, a decision is to be made as to the most suitable grouping of teams into small or bigger units taking into account the affinities between disciplines as well as the economy of accommodation (area per person).

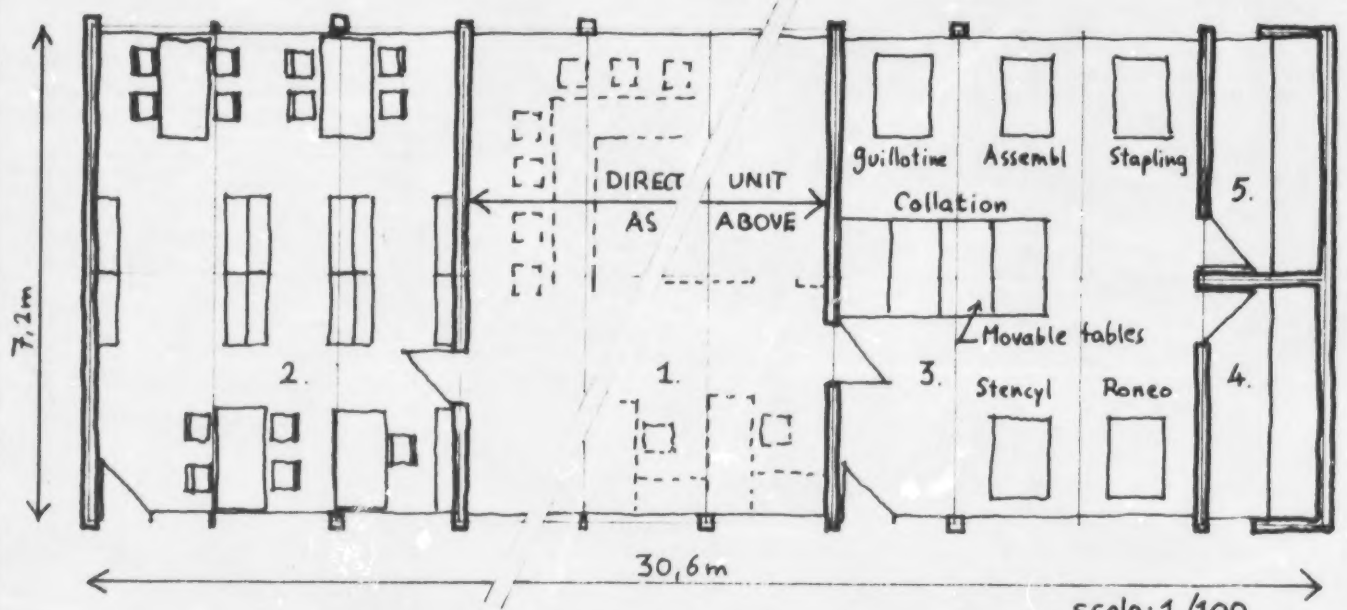
Table 3 shows examples of such groupings - for the three Models used throughout study - the outcome of which is the number of units of each type to be included in the final schedule of accommodation illustrated in Table 4.



Direction Unit

Schedule of accommodation

	Staff	Sqm.
1.- Reception, tel.	1	26
2.- Head's office	1	26
3.- Assistant	1	13
4.- Secretariat	3	19,5
5.- Records		6,5
6.- Conference room		39
Total	6	130



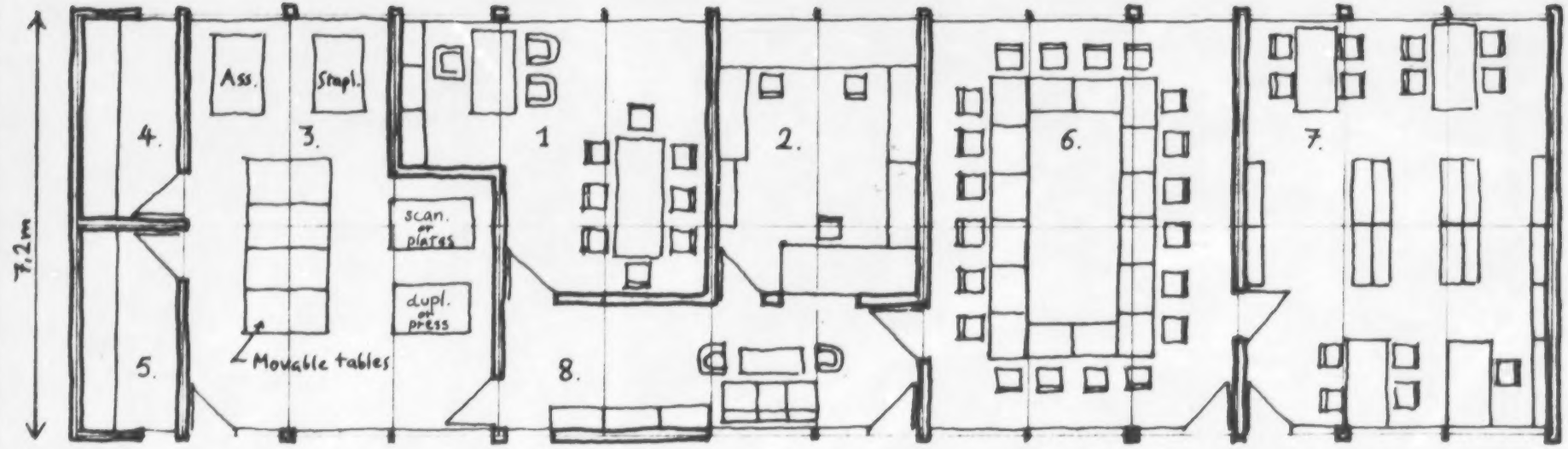
Direct. and Service Unit.

Schedule of accommodation

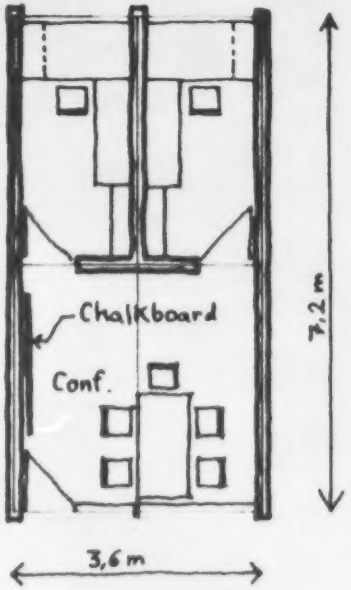
	Staff	Sqm.
1. Direction unit (detail as above)	6	130
2 - Specialized library	1	39
3- Duplication	2	39
4.- Paper store		6,5
5.- Print. doc. stor.		6,5
Total	9	221

Schedule of accommodation

	Staff.	Sqm.
1.- Coordinator's office	1	22
2.- Typists	3	17
3.- Duplication workshop	2	34
4.- Printed documentation store		6,5
5.- Paper store		6,5
6.- Conference room (20 pers)		39
7.- Specialized library	1	39
8.- Circulation		18
	7	182



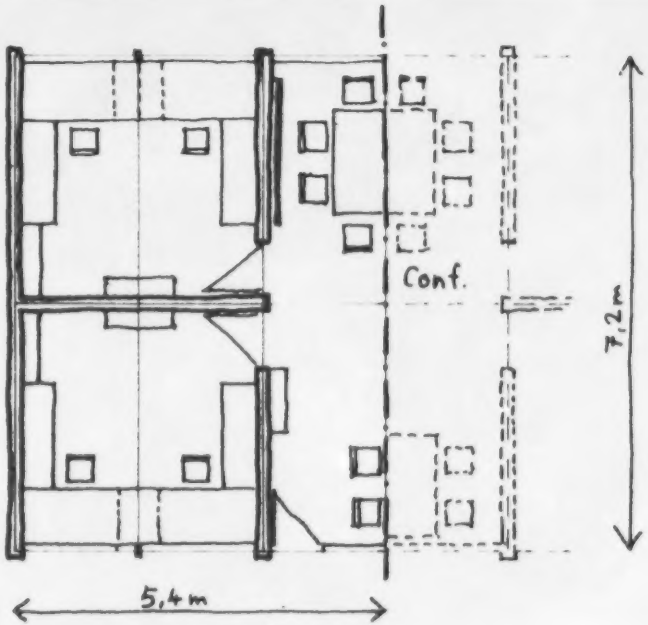
72 73 scale: 1/100



26 sqm.

Unit for team of two curriculum developers with conference room

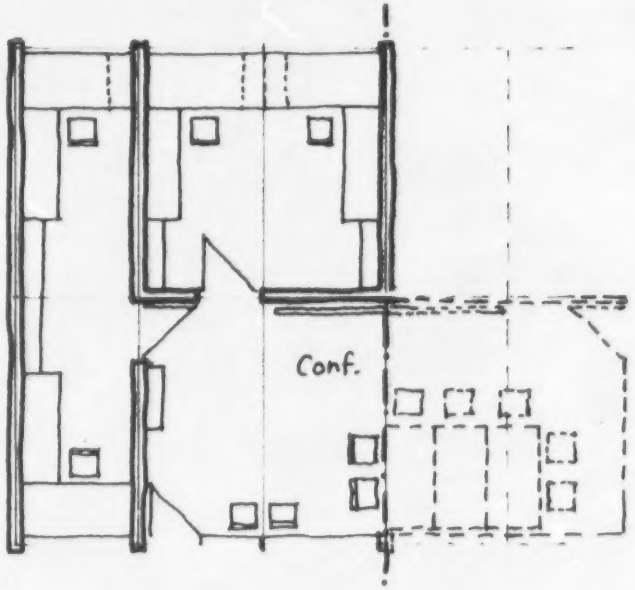
13 sqm./person



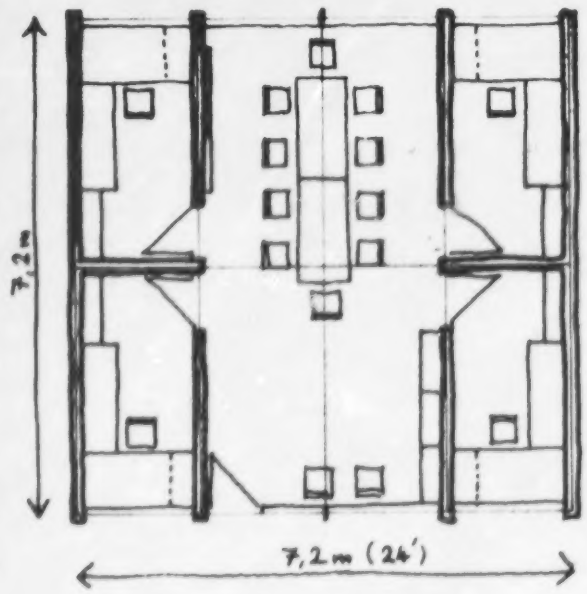
39 sqm.

Unit for team of four curriculum developers with conference room shared with another team

9,75 sqm/person



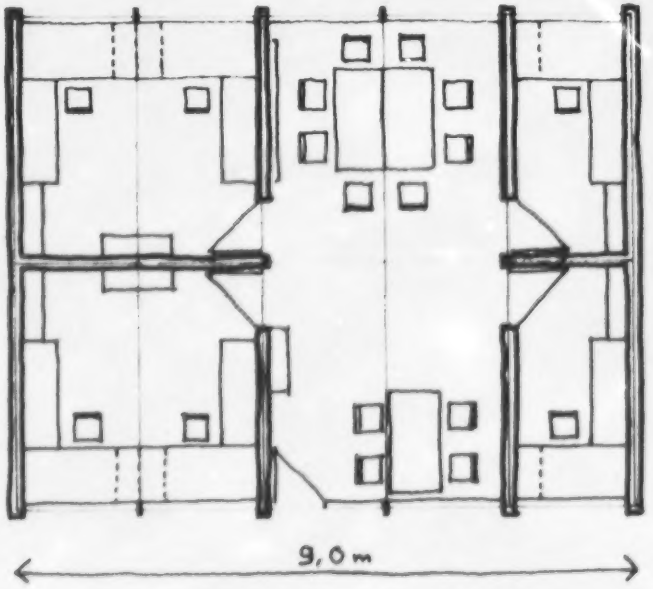
Variant Characteristics: as above



← 52 sqm.

Unit for four curriculum developers with conference room

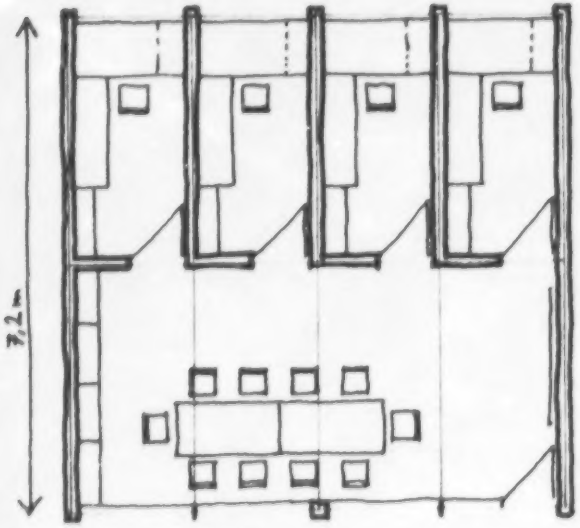
13 sqm./pers.



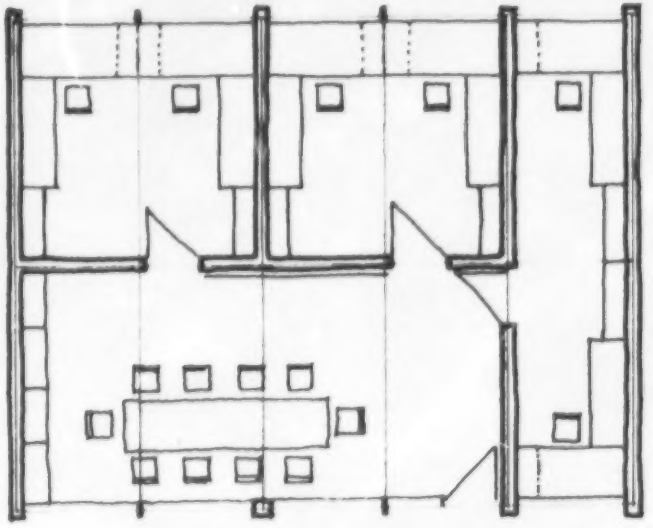
← 65 sqm.

Unit for six curriculum developers with conference room

10,8 sqm./pers.



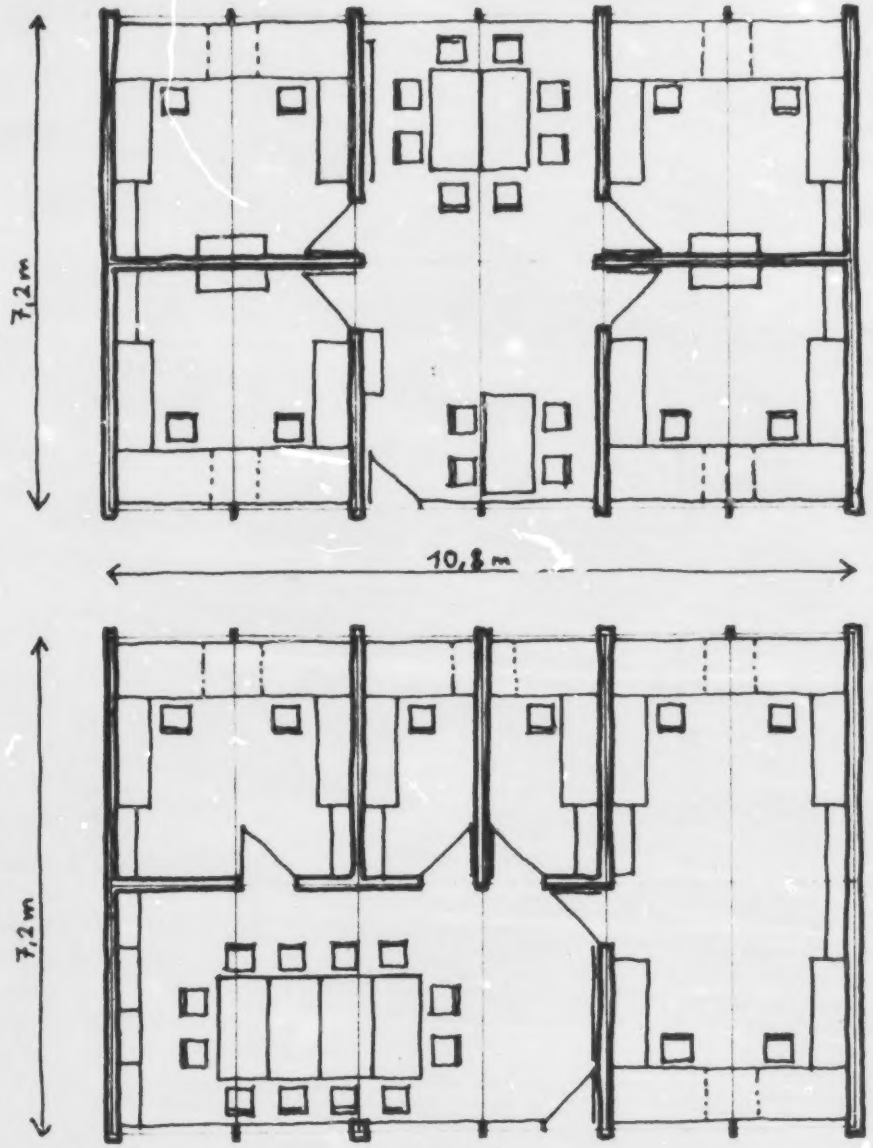
Variant. Characteristics: as above



Variant. Characteristics: as above.

Note: a unit for six curriculum developers in sciences (with a small laboratory) can be accommodated within these dimensions.
See drawing No. 16

scale: 1/100



78

scale: 1/100

78 sqm.

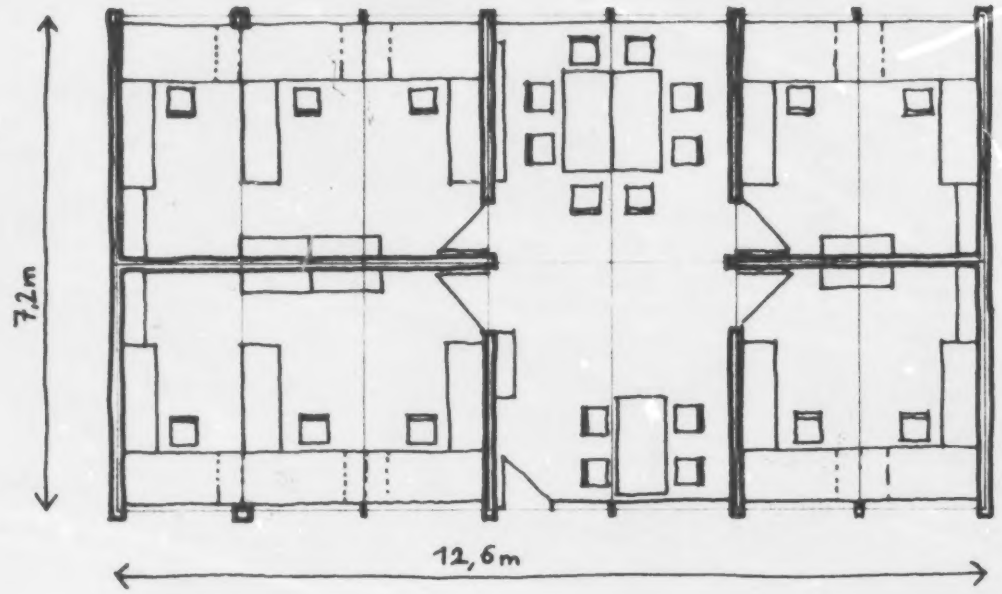
Unit for team of eight curriculum developers with conference room

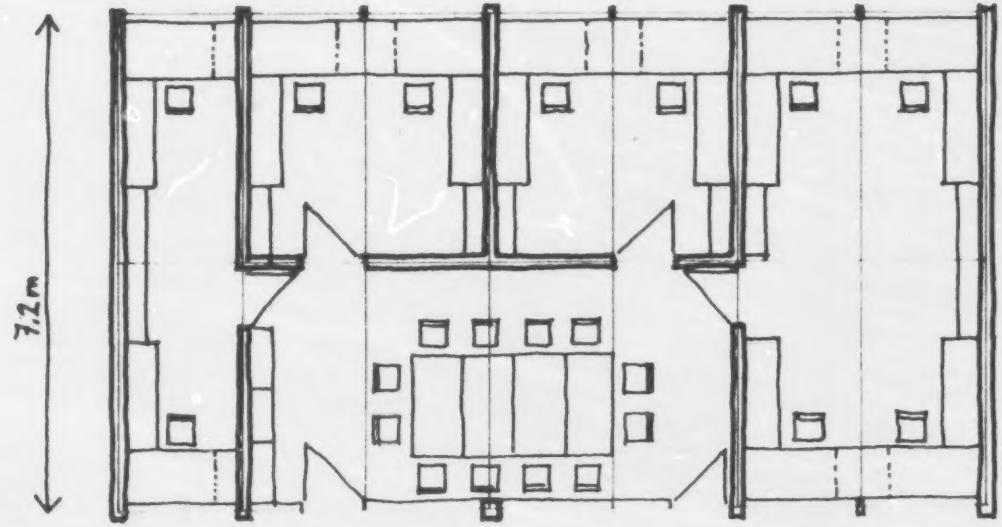
9,75 sqm / person

Variant
Characteristics:
as above

Note: a unit for 6 curriculum developers in sciences (with a small laboratory) can be accommodated within these dimensions.
See drawing No. 16

79





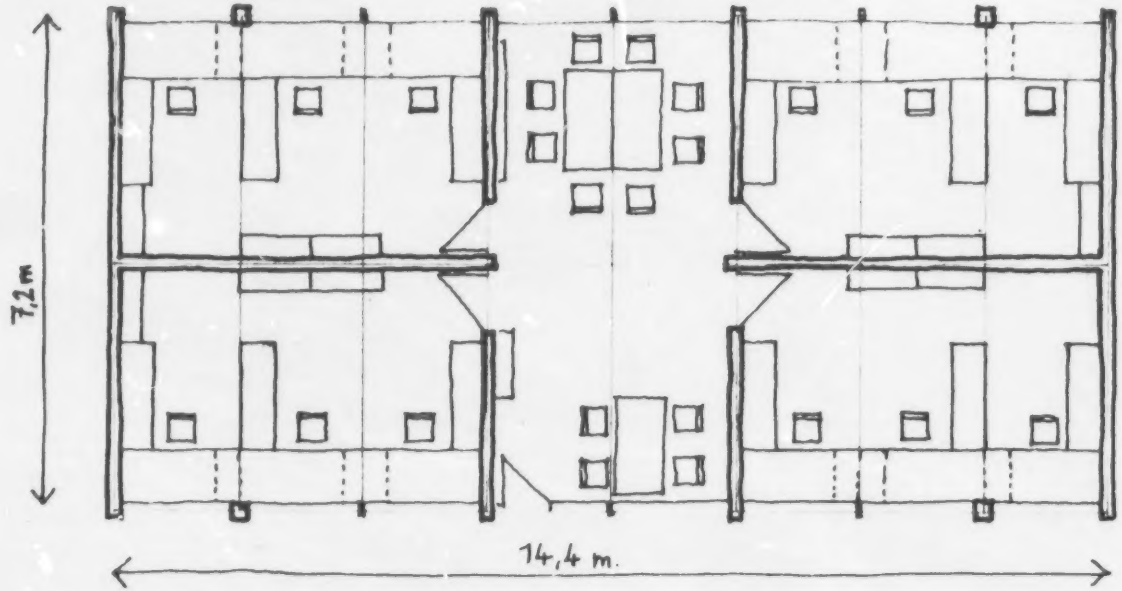
Scale: 1/100

91 sqm.

Unit for team of ten
curriculum developers
with conference room

9,10 sqm /person

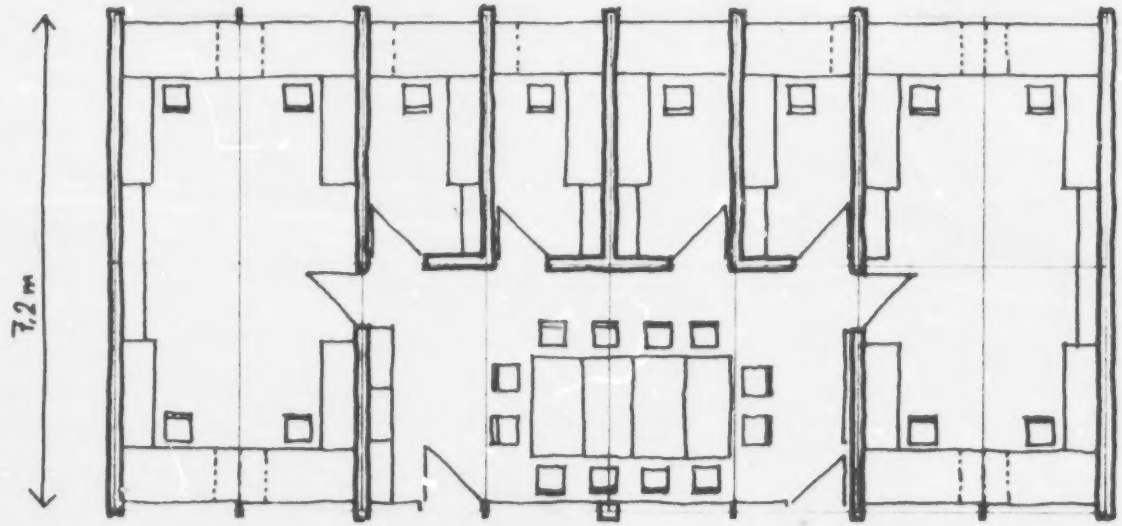
Variant
Characteristics:
as above



104 sqm.

Unit for team of twelve curriculum developers with conference room

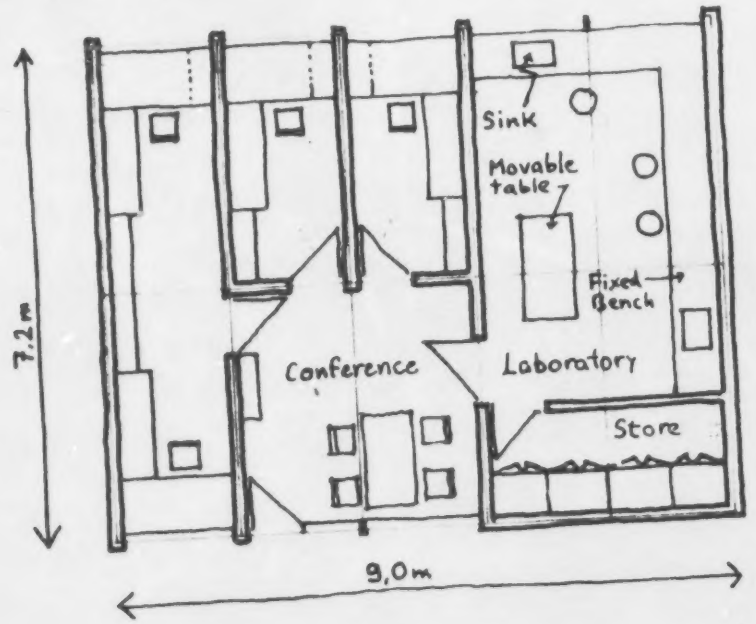
8,7 sqm/person



Variant.
Characteristics:
as above

Note: a unit for 8 curriculum developers in sciences (with a small laboratory) can be accommodated within these dimensions.
See drawing No. 17.

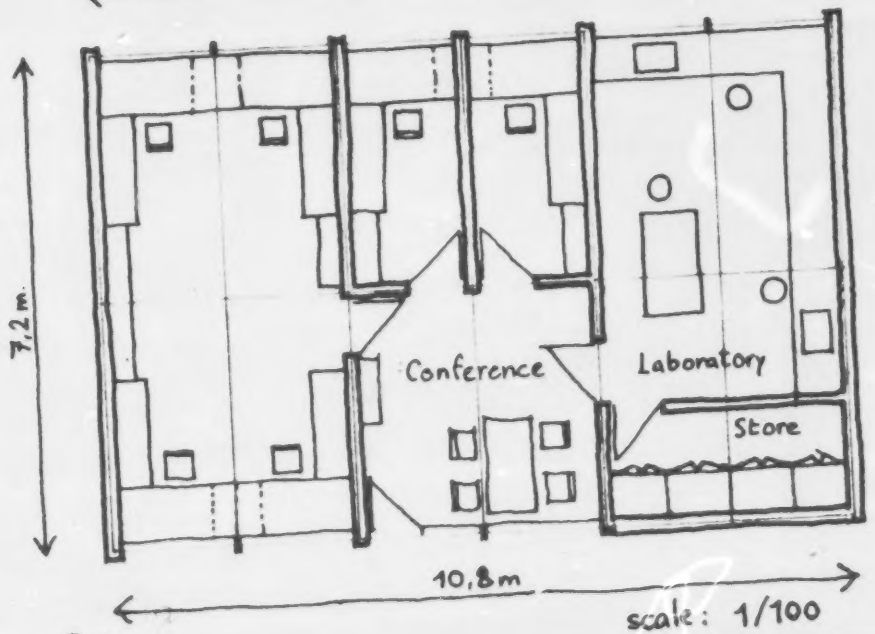
scale: 1/100



65 sqm.

Unit for team of four curriculum developers in sciences with conference room and experimental laboratory.

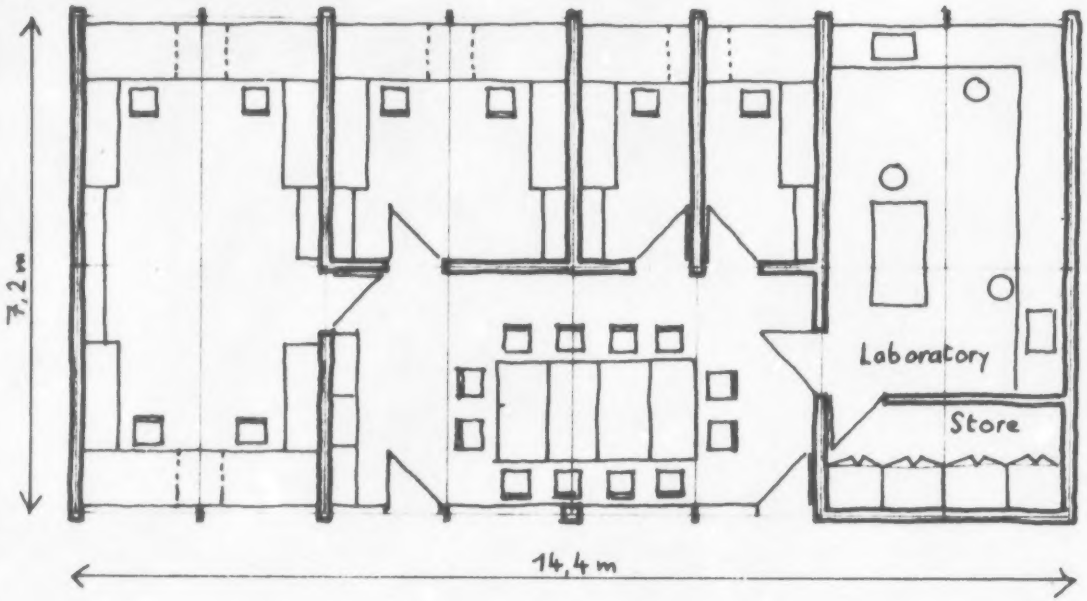
16,25 sqm/person



78 sqm.

Unit for team of six curriculum developers in sciences with conference room and experimental laboratory.

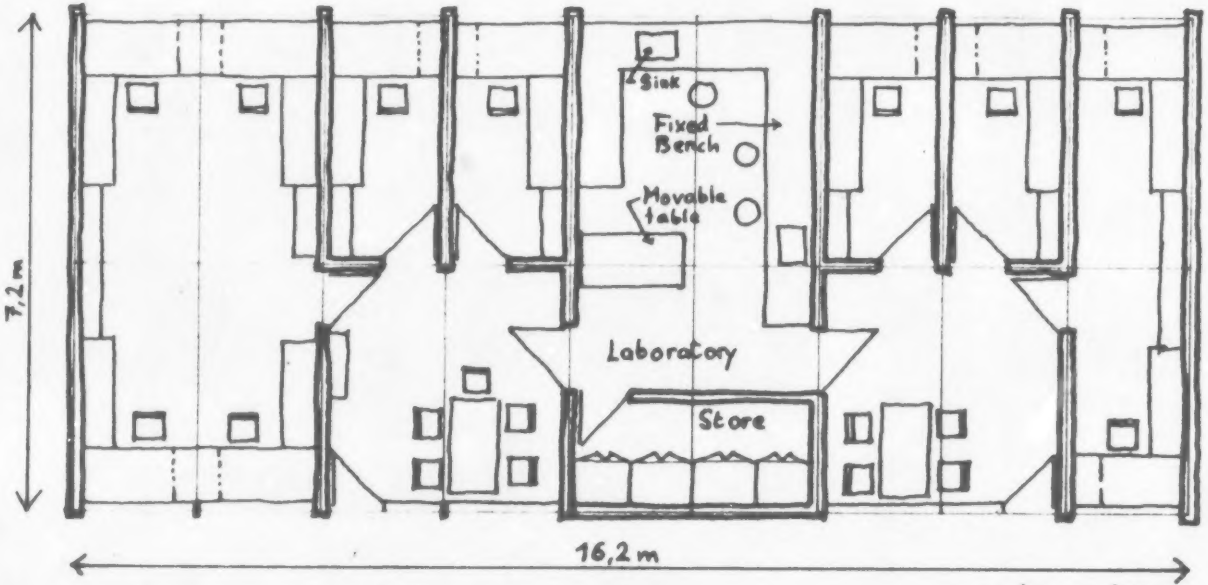
13 sqm/person



104 sqm.

Unit for team of eight curriculum developers in sciences with conference room and experimental laboratory

13 sqm/person

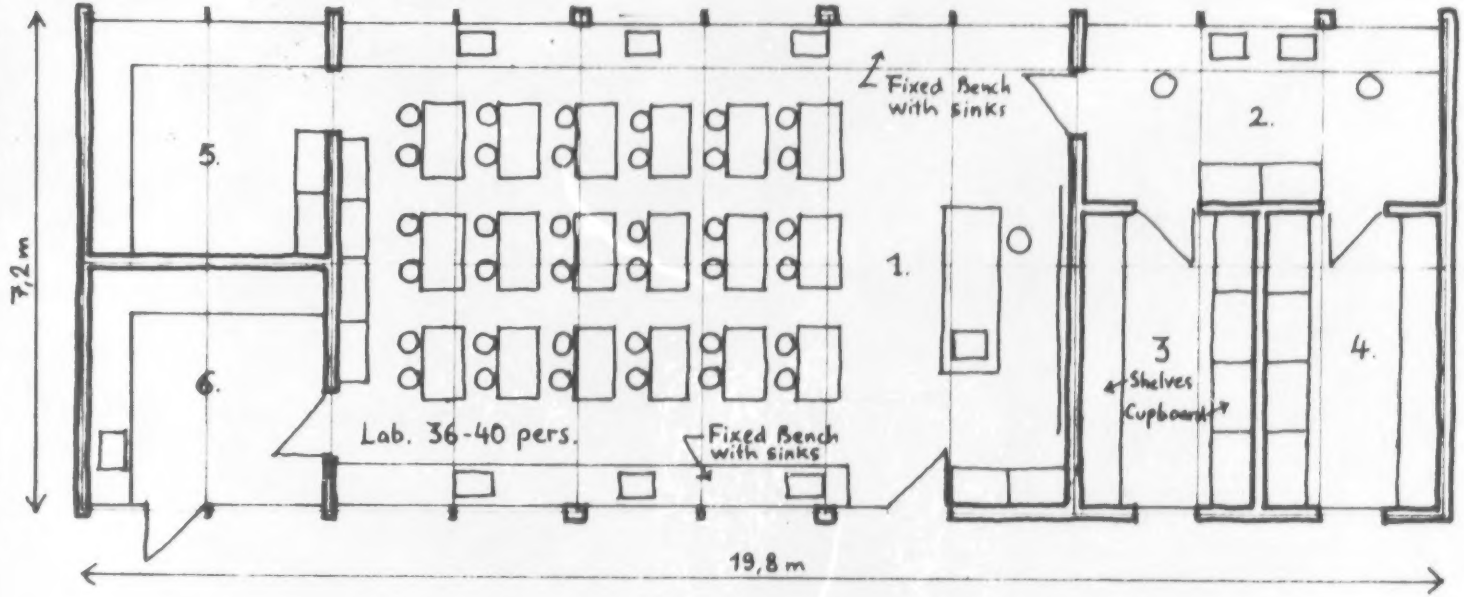


117 sqm.

Unit for team of ten curriculum developers in sciences sharing one experimental laboratory.

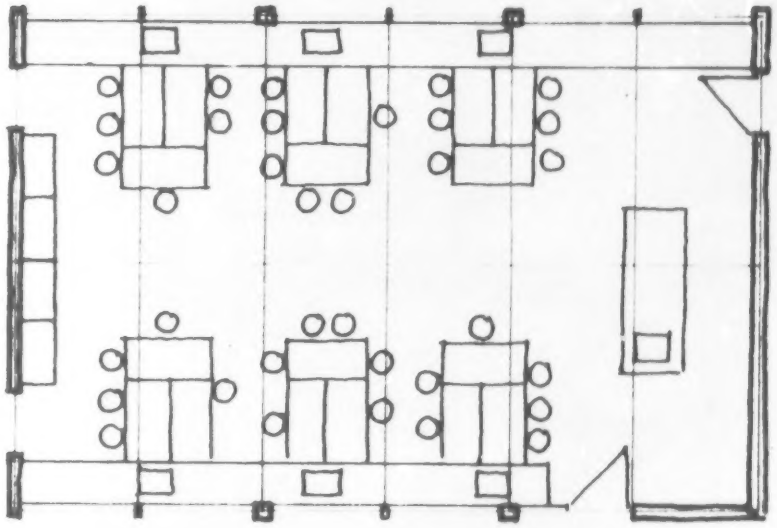
11,7 sqm/person

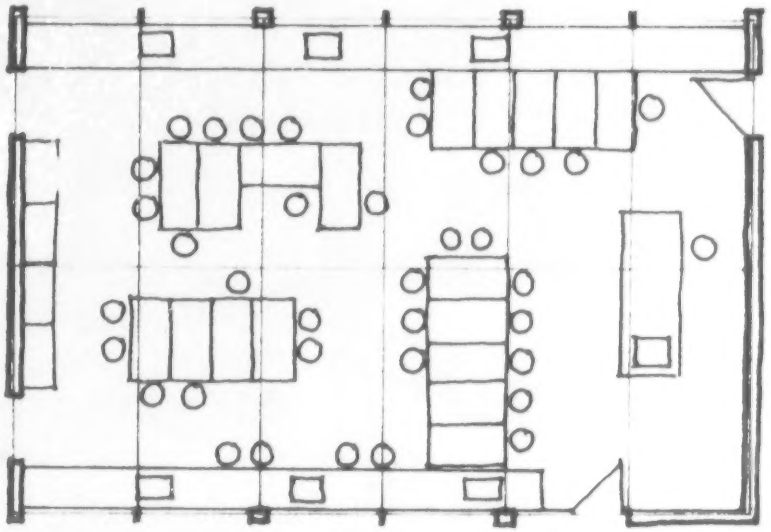
scale: 1/100



143 sqm

	Sqm.
1.- Multipurp. laboratory	78
2.- Prep. room	15
3.- Chem. store	12
4.- Phys. store	12
5.- Workshop area	13
6.- Anim./ Plants	13
Tot. area	143



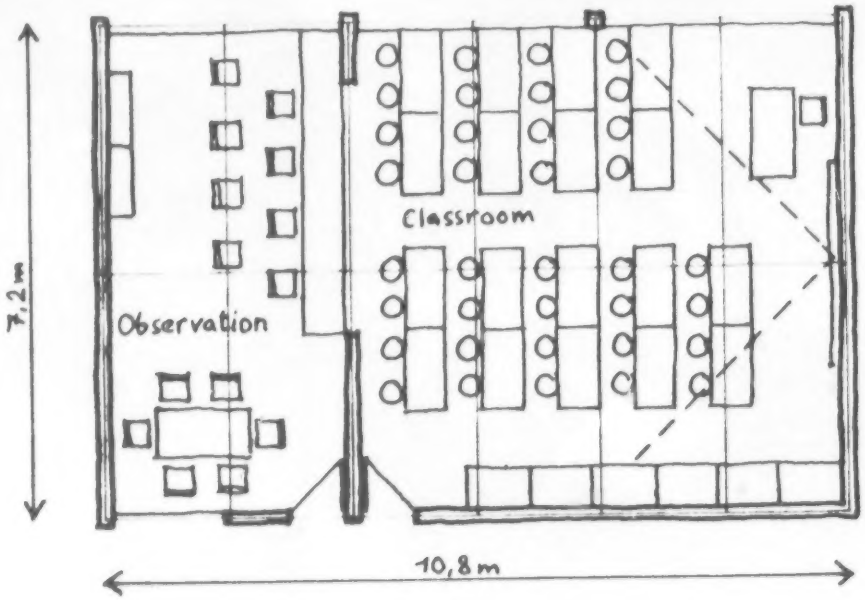


88

Alternative arrangements for practical exercises

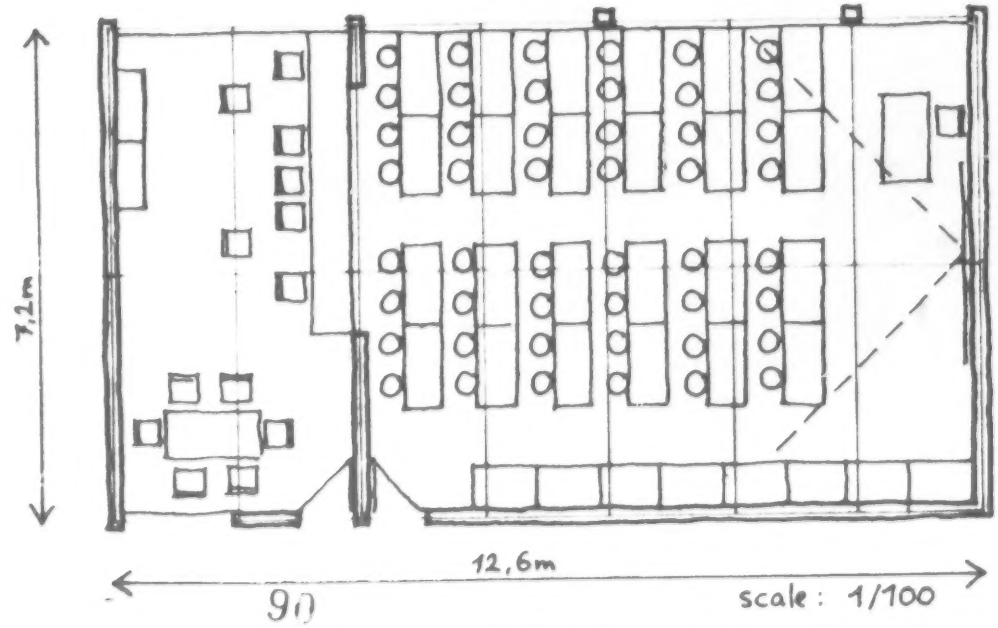
Scale: 1/100

89



78 sqm

Classroom for 36 pupils
with observation room



91 sqm.

Classroom for 48 pupils
with observation room.

GROUP II - TABLE 3 : GROUPING OF DESIGN TEAMS / NUMBERS OF UNITS

56

Subjects	MODEL I								MODEL II								MODEL III							
	Des. Teams' Staff (No. of pers.) Prim. + Sec.	No. of units of 2, 4, etc... pers. (* = with laboratory) 2p.	4p.	6p. or 4p*	8p. or 6p*	10p.	12p. or 8p*	10p*	Des. Teams' Staff (No. of pers.) Pr. + L.S. + U.S.	No. of units of 2, 4, etc... pers. (* = with laboratory) 2p.	4p.	6p. or 4p*	8p. or 6p*	10p.	12p. or 8p*	10p*	Des. Teams' Staff (No. of pers.) Pr. + L.S. + U.S.	No. of units of 2, 4, etc... pers. (* = with laboratory) 2p.	4p.	6p. or 4p*	8p. or 6p*	10p.	12p. or 8p*	10p*
A.- CORE FIELD OF STUDY																								
Science + Math																								
Mathematics	4 + 4				1				4+4+4						1		4+4+6		1			1		
Science :	4			1*					4			1*					4			1*				
Physics	2						1*		3				1*				2+2			1*				
Chemistry	2								3								2+2			1*				
Biology	2								3				1*				2+2			1*				
Earth Science	2								3								2+2			1*				
Total Science + Math	20			1*	1		1*		28			1*	2*		1		34		1	5*		1		
Other subjects																								
Languages	4 + 4				1				4+2+2					1			4+4+4						1	
Cultural inheritage									2								4		1					
Social studies	4 + 4				1				4+4+6						1		4+4+8				2			
Hygiene, Health, Phys. Ed.	2				1				2+2		1						2+2		1					
Aesthetics (Music, ...)	2 + 4								2+3+3				1				2+4+4					1		
Community and manag.	4		1						2+2		1						4+4				1			
Practical arts (home ec.)	4 + 4						1*		4+3+3							1*	4+4+4			3*				
Agriculture	4						1*		3+3				1*				4+4			2*				
Industrial arts	4								3+3				1*				4+4			2*				
Population education	4		1						6			1					8				1			
Religious studies									2	1							2	1						
Total other subjects	48		2		3		2*		68	1	2	1	1 + 2*	1	1	1*	92	1	2	7*	4	1	1	
B.- ADULT EDUCATION																								
Curriculum develop.																	24			2*	2			
Women's education																	24		2		2			
Training + field operat																	16				2			
Survey and evaluation																	16				2			
Total Adult education	-								-								80		2	2*	8			

Pr = Primary
L.S. = Lower Secondary
U.S. = Upper Secondary

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TABLE 4 : DESIGN TEAMS SCHEDULE OF ACCOMODATION

Units of accommodation		Ref. Drawing	Area/unit Sqm.	MODEL I No. of units	MODEL I Area Sqm	MODEL II No. of units	MODEL II Area Sqm.	MODEL III No. of units	MODEL III Area Sqm.
A.- CORE FIELD OF STUDY									
	Direction Unit	No. 9	130					1	130
	Direction + Service Unit	No. 9	221			1	221		
- Science + Math :	Coord. and Service Unit	No. 10	182					1	182
Design teams	Unit for 4 pers.	No. 12	52					1	52
	Unit for 4 pers. with lab.	No. 16	65	1	65	1	65	5	325
	Unit for 6 pers. with lab.	No. 16	78			2	156		
	Unit for 8 pers.	No. 13	78	1	78				
	Unit for 8 pers. with lab.	No. 17	104	1	104				
	Unit for 10 pers.	No. 14	91					1	91
	Unit for 12 pers.	No. 15	104			1	104		
Facilit. for testing :	Laboratory	No. 18	143	1	143	1	143	1	143
	Classroom with observation	No. 19	78					1	78
Utility rooms :	Toilets	No. 2	13	1	13	2	26	2	26
	Storage	No. 2	13	1	13	2	26	2	26
- Other subjects :	Coord. and Service Unit	No. 10	182					1	182
Design teams :	Unit for 2 pers.	No. 11	26			1	26	1	26
	Unit for 4 pers.	No. 12	52	2	104	2	104	2	104
	Unit for 4 pers. with lab.	No. 16	65					7	455
	Unit for 6 pers.	No. 12	65			1	65		
	Unit for 6 pers. with lab.	No. 16	78			2	156		
	Unit for 8 pers.	No. 13	78	3	234	1	78	4	312
	Unit for 8 pers. with lab.	No. 17	104	2	208				
	Unit for 10 pers.	No. 14	91			1	91	1	91
	Unit for 10 pers. with lab.	No. 17	117			1	117		
	Unit for 12 pers.	No. 15	104			1	104	1	104
Facilit. for testing :	Laboratory	No. 18	143					1	143
	Classroom with observation	No. 19	78	1	78	1	78	1	78
Utility rooms	Toilets	No. 2	13	2	26	2	26	4	52
	Storage	No. 3	26	1	26	1	26	2	52
TOTAL A.					1092		1612		2652
B.- ADULT EDUCATION									
	Direction + Serv. Unit	No. 9	221					1	221
Design teams :	Unit for 4 pers.	No. 12	52					2	104
	Unit for 4 pers. with lab.	No. 16	65					2	130
	Unit for 8 pers.	No. 13	78					8	624
Facilit. for testing :	Laboratory	No. 18	143						
	Classroom with observation	No. 19	78					1	78
	Toilets	No. 2	13					4	52
	Storage	No. 3	26					2	52
TOTAL B.					–		–		1261
TOTAL DESIGN TEAMS					1092		1612		3913

CHAPTER NINE: SERVICE TEAMS

The main components of the service teams group have been described in general terms under Chapter Three. They include:

- an Evaluation Unit;
- an Educational Innovation Unit, subdivided into Graphic, Photographic and Film sections, the activities of which would be coordinated through a small administrative sub-unit equipped with a conference room, a small duplication and printing room and possibly a small specialized library;
- a Prototype Equipment Workshop;
- a Radio and Broadcasting Unit which might, under certain circumstances extend its field of action to support activities for educational T.V.

Evaluation Unit

The function of evaluation is not only the concern of the CDC but also of various divisions of the Ministry of Education, such as the Inspectorate of schools and Examinations Syndicate. Hence, overlapping of evaluation functions by the various divisions is not only inevitable but also desirable so long as work is not duplicated in any way.

The role of the Evaluation Unit of the CDC would be mainly focused on the formative assessment of ongoing curriculum projects undertaken by the Centre. It should be staffed with people having received special training in evaluation, testing and measurement techniques who could brief new members of the CDC staff on procedures of questionnaire construction, data analysis and report writing and who would assist the curriculum officers of the various teams:

- in the construction of assessment instruments such as questionnaires, interview schedules and various types of achievement measures;

- in the ongoing assessment of the various activities associated with the implementation of the Centre's projects or programmes.

Besides offices for the members of the evaluation team, and a meeting room, the accommodation should include a special room with machines for data processing as well as facilities for filing of records.

Drawings No. 20 and 21 show examples of accommodation for evaluation teams of various sizes.

Educational Innovation Unit (audio-visual)

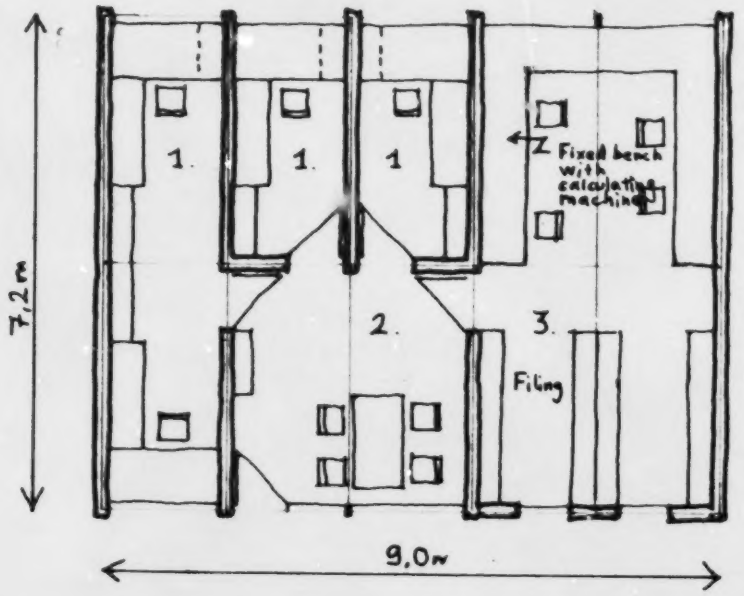
This unit would service the curriculum development teams of the Centre in graphic work, calligraphy, photo and diagram illustrations, charts, and films, as needed for the specific work of the other units.

- Ideas that result in a printed format would be developed in the Graphic Design Section which would include a design studio with adjacent store, one office for the head of the section and a typists' room (Examples of accommodation are shown in Drawing No. 22).
- A small Photographic Section equipped with a photo-studio, a darkroom with store and one office would provide the required photography based items (See example of accommodation in Drawing No. 23).
- The Film Section would include one projection room of about fifty seats, a film library, a repair and maintenance workshop for material used in the Centre as well as for training sessions in the field, and one office (See Drawing No. 23).

The administrative unit which would coordinate the work of these various sections is shown in Drawing No. 10 (See Chapter Eight above). In a small-size CDC it would be possible to do without the specialized library illustrated in this drawing.

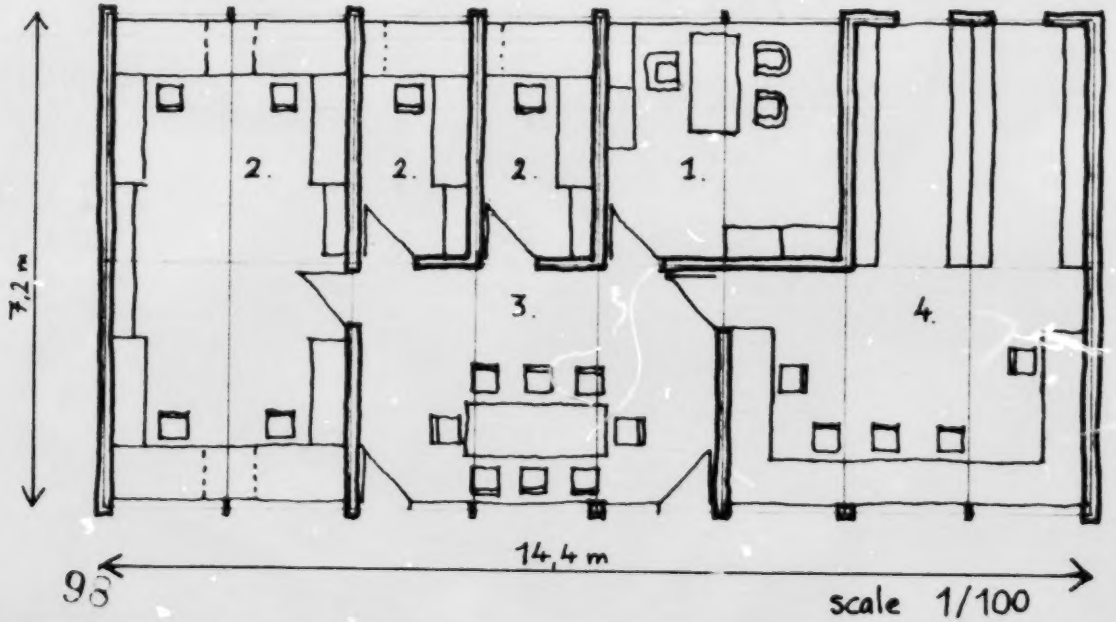
Prototype Equipment Workshop

The design of prototype equipment such as for mathematics, sciences, home



MODEL I
Schedule of accommodation

	Staff	Sqm.
1.- Evaluaters' offices	4	26
2.- Meeting room		13
3.- Data processing and filing room		26
	4	65



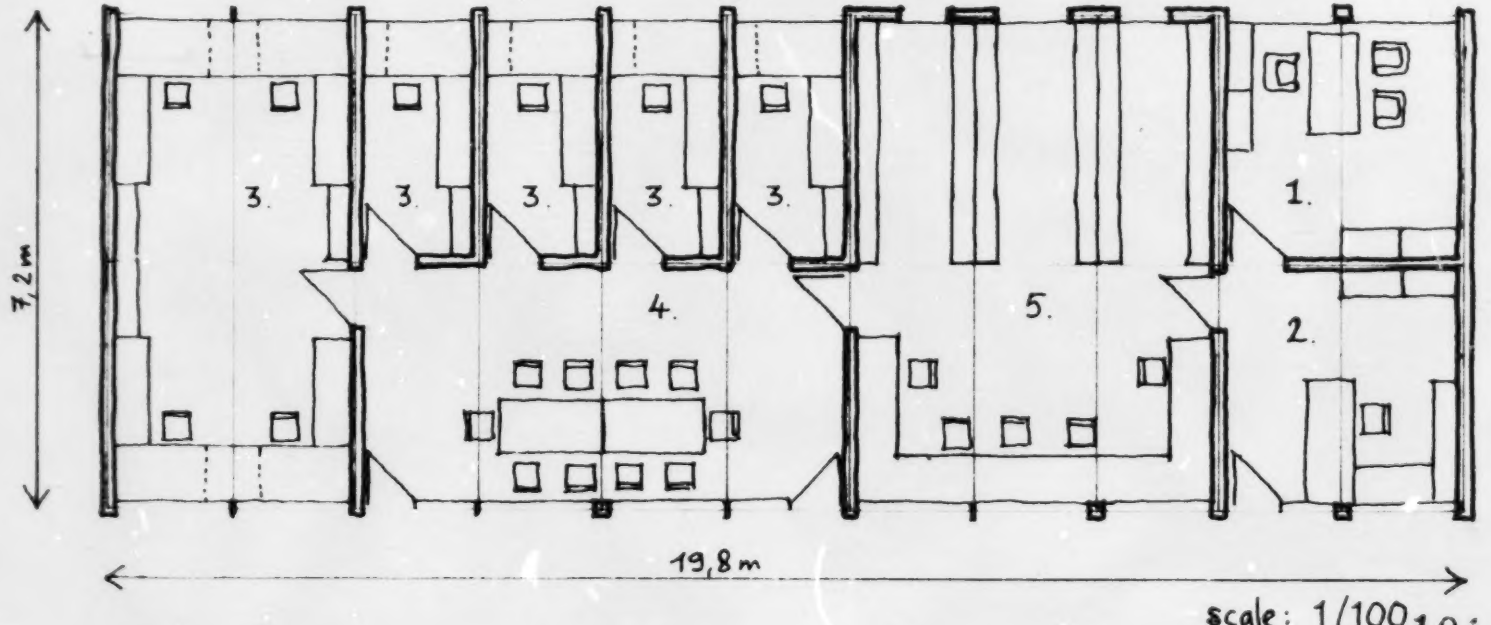
MODEL II
Schedule of accommodation

	Staff	Sqm.
1- Head's office	1	13
2.- Evaluaters' offices	6	39
3.- Meeting room		19,5
4.- Data processing and filing room	1	32,5
	8	104

MODEL III

Schedule of accommodation

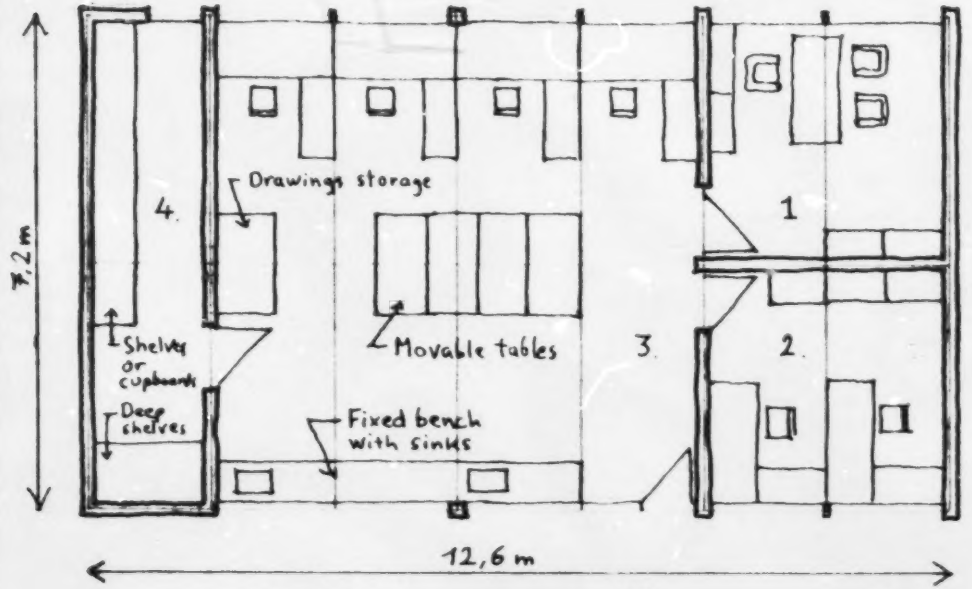
	Staff.	Sqm.
1.- Head's office	1	13
2.- Typist-stenographer + Recept.	1	13
3.- Evaluaters' office	8	52
4.- Meeting room		26
5.- Data processing and filing	2	39
	12	143



scale: 1/100

100

101

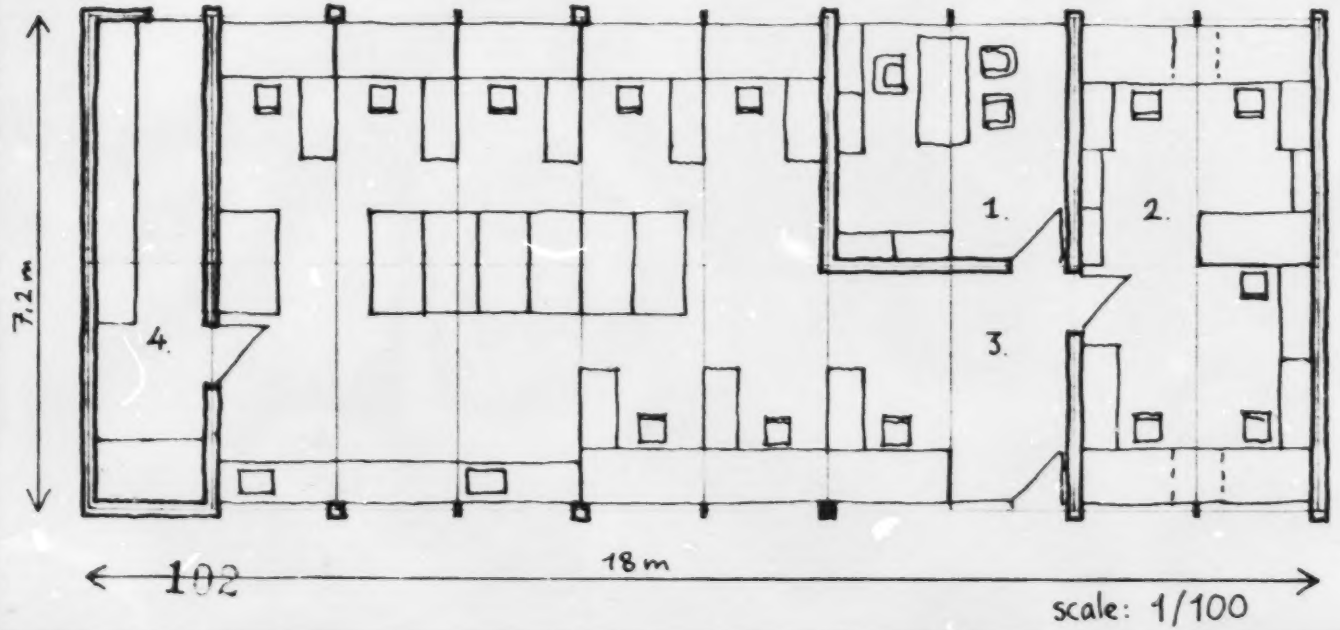


GRAPHIC DESIGN SECTION

MODELS I and II

Schedule of accommodation

	Staff	Sqm.
1.- Chief of section	1	13
2.- Typists	2	13
3.- Graphic design studio	4	52
4.- Store		13
	7	91

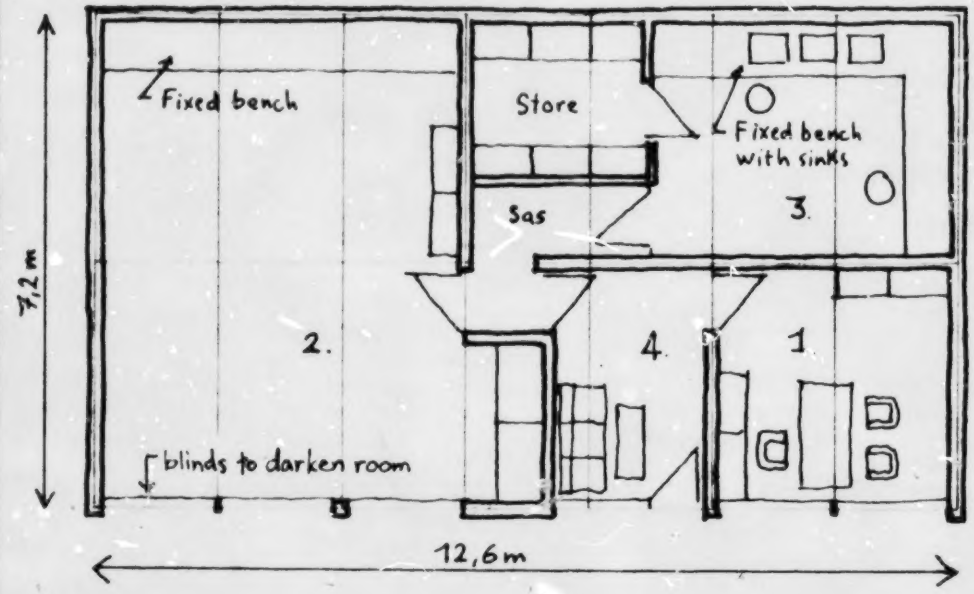


MODEL III

Schedule of accommodation

	Staff	Sqm.
1.- Chief of section	1	13
2.- Typists	5	26
3.- Graphic design studio	8	78
4.- Store		13
	14	130

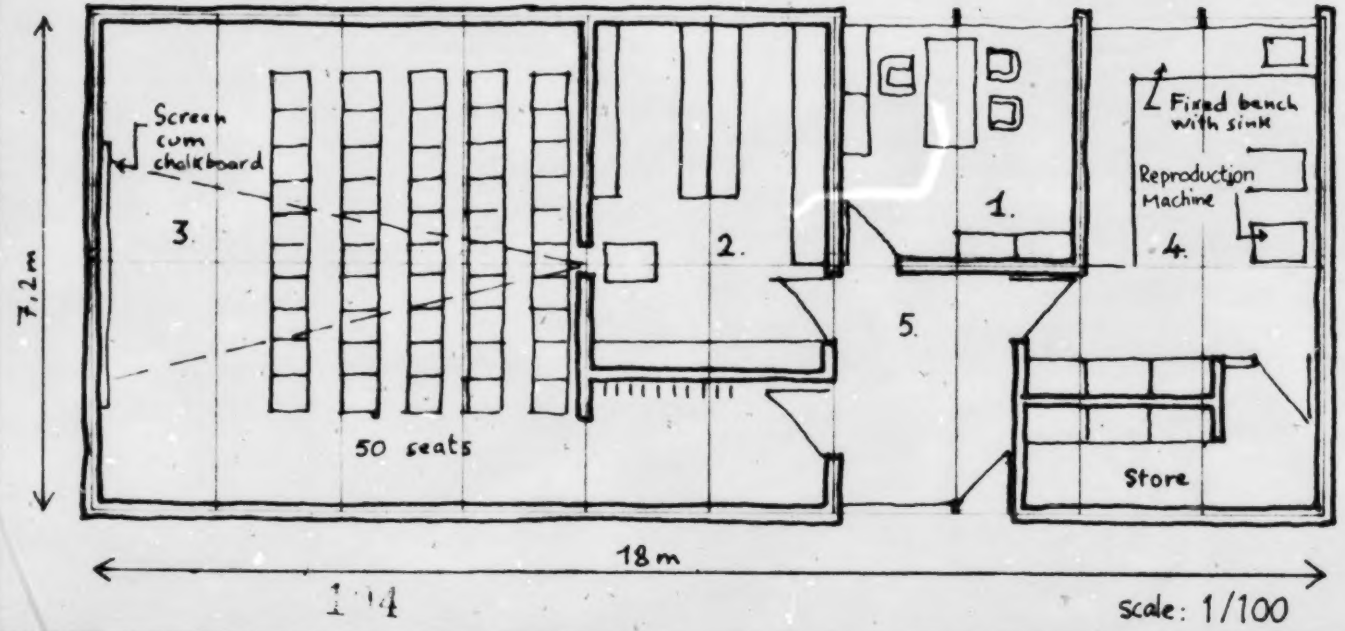
scale: 1/100



PHOTOGRAPHIC SECTION

Schedule of accommodation

	Staff	Sqm.
1.- Chief of section	1	13
2.- Photo studio	1	43
3.- Dark room with store	1	22
4.- Circulation		13
	3	91



FILM SECTION

Schedule of accommodation

	Staff	Sqm.
1.- Chief of section	1	13
2.- Film library	1	20
3.- Projection room		58
4.- Repair shop with store	2	29
5.- Entrance / circulation		10
	4	130

scale: 1/100

economics, agriculture and industrial arts, is a function associated with curriculum development. As has been illustrated in Chapter Eight, curriculum workers in these areas require their team offices to be provided with small laboratories where they can try out ideas.

However, once ideas have been worked out, there is a need for an experimental workshop in which the curriculum worker, in collaboration with skilled technicians, can develop the ideas into an item of prototype equipment for trial in a few schools.

Facility for this is provided in a workshop, the size of which would allow for production of single items or small batches - for field testing - of experimental teaching/learning equipment but not for mass production (refer to consideration developed in Chapter Two).

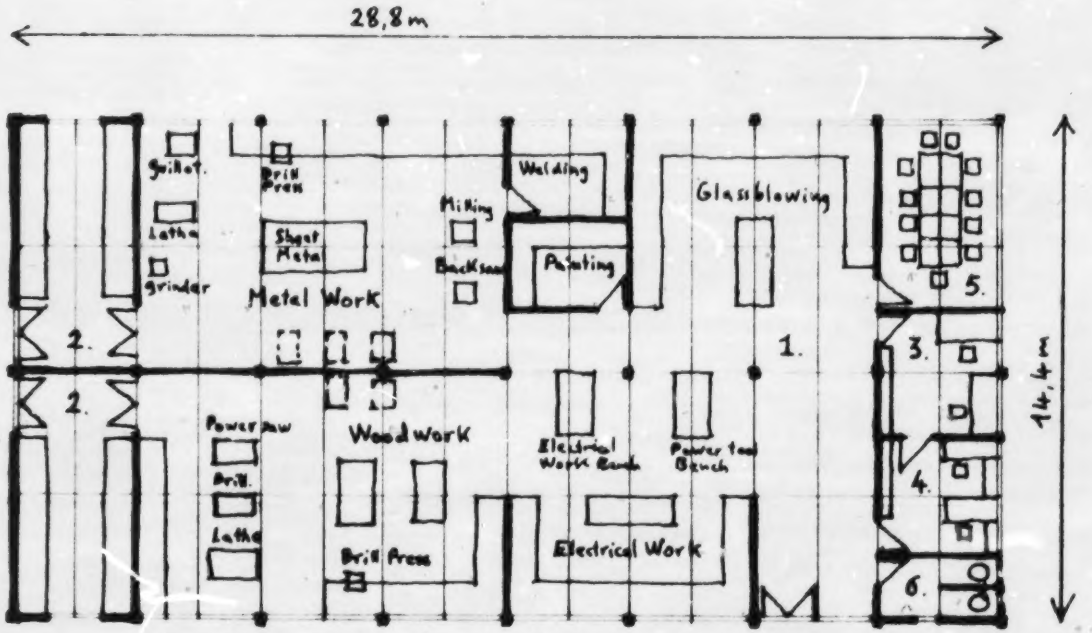
Internal space organization would need to take into account that there is likely to be a variety of technical operations, such as woodwork, electrical and electronic work, metal work, assembly and finishing and glass blowing, within the experimental workshop, though each of these operations will be on a small scale.

Final adaptation of selected items to the particular requirements of industrial production will best be done by specialists of private or national firms responsible for mass production. However, the presence of a design and production engineer attached to the experimental workshop and who would advise on the feasibility of conversion of experimental equipment into full-scale mass production design, would be most helpful. Thus provision of space for the engineer, some draughtsmen and for small group discussion should be made.

Drawing No. 24 illustrates the scale of such an experimental workshop.

Radio and Educational Broadcasting Unit

The function of this unit will be dependent upon decisions relating to its articulation with the educational radio and T.V. service and thus may vary widely from country to country. In any case, preparation of materials for use in school broadcasting and possibly television production are likely to be required.



scale 1/200

Schedule of accommodation

	Staff	Sqm
1.- Experimental workshop (Woodwork, Metalwork, Electrical, Glassblowing, Painting ...)	12	311
2.- Stores		52
3.- Industrial designer	1	13
4.- Draughtsmen	2	13
5.- Meeting room		19,5
6.- Toilets		6,5
Total	15	415

Curriculum centre design

Stipulation of the objectives of the educational broadcasting programmes will be at least a function of the CDC, as well as the training of teachers in the use and evaluation of school broadcasts. Beyond that, various activities can be envisaged, for instance:

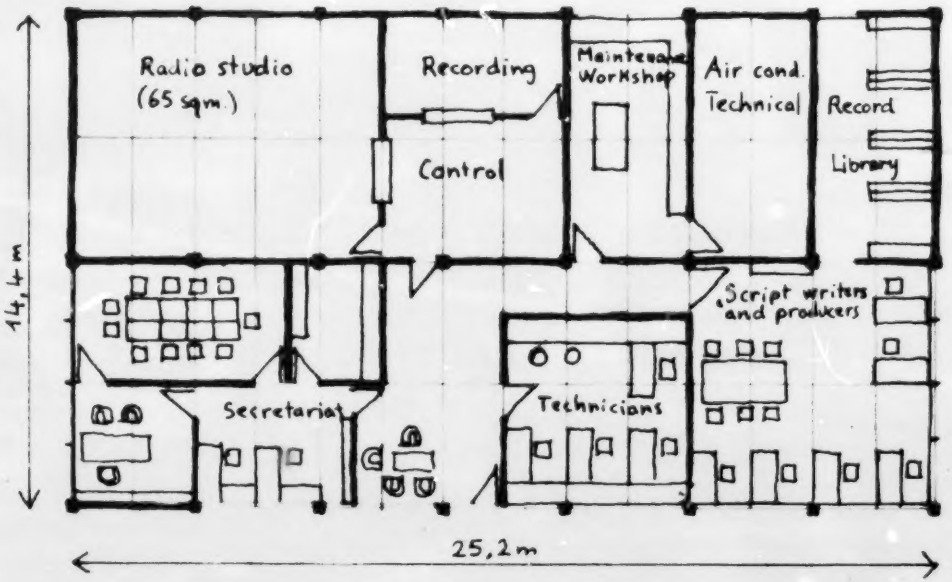
- The design of the broadcasts and the actual script writing would be done by the CDC, while the production and editing of the programmes would be done by the national broadcasting service.
- Or the recording of school broadcasts would also be a function of the CDC in which case the Radio Unit would need at least one radio studio with recording and control rooms, a work room for the technicians, a small maintenance workshop for monitoring equipment supplied to the schools, an office for script writer and producers with a record library and some administrative facilities. Drawing No. 25 illustrates this case.

Note on television

Beyond that, particularly if the CDC becomes involved in T.V. production, the required facilities might become very expensive. The nature of production should be studied very carefully as it is of paramount importance in the allocation of space and equipment, and in the subsequent investment. Production based on real life situations in the field, rather than in studios, could not only substantially reduce the number of studios and initial capital costs, but also contribute to the better education of the learners.

The view may be taken that extended facilities for T.V. go beyond the normal functions of a CDC. Thus only the principle of organization of such a complex has been illustrated here (See Drawing No. 25). The complex is divided basically into four sectors:

- The core, made up of the studios proper, with their acoustic installations; these studios are generally located in the centre and built double-walled so as to meet the acoustic requirements.
- The second part can be called the 'film complex', and constitutes, a centre for the processing and preparation of films (developing, provision

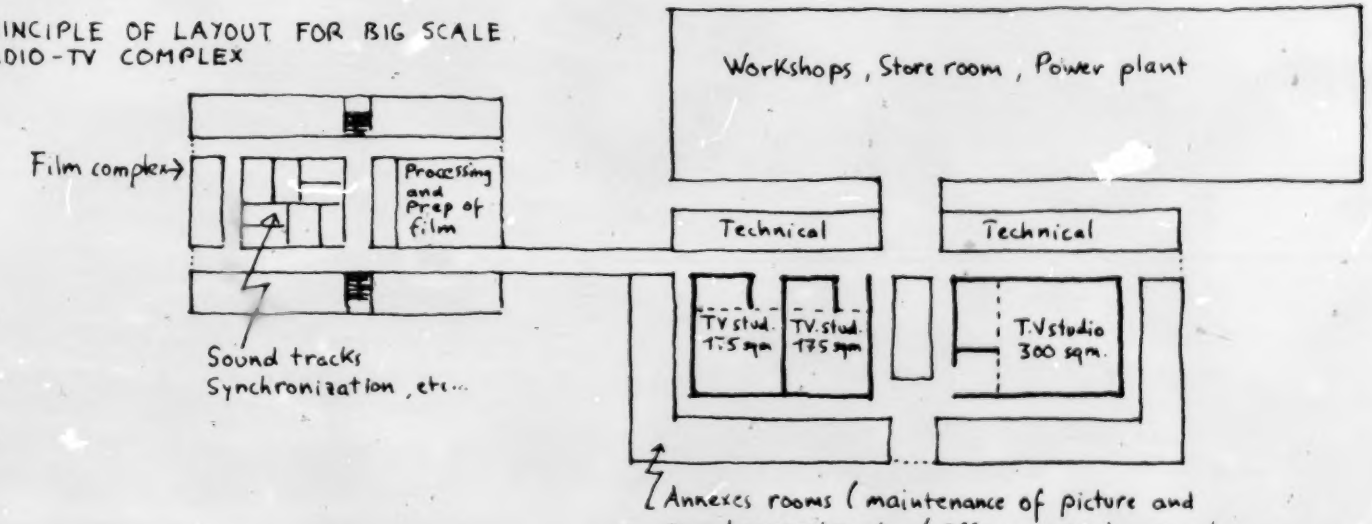


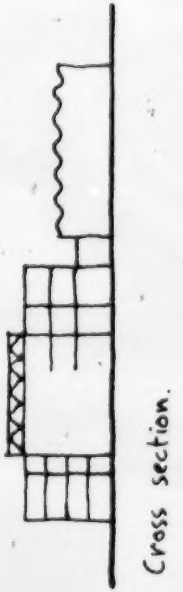
RADIO UNIT scale 1/200

Schedule of accommodation

	Staff	Sqm.
- Administration (Head, Meeting room, Secretariat, Records)	3	65
- Radio studio with recording and control room	3	104
- Maintenance workshop	2	26
- Air conditioning, technical		26
- Technicians' workroom	5	30
- Script writers and producers with records library	9	78
- Circulation		35
	22	364

PRINCIPLE OF LAYOUT FOR BIG SCALE RADIO-TV COMPLEX


Workshops, Store room, Power plant
Film complex
Processing and Prep of film
Technical
Technical
TV stud. 175 sqm
TV. stud. 175 sqm
T.V studio 300 sqm.
Sound tracks
Synchronization, etc...
Annexes rooms (maintenance of picture and sound apparatus, etc./ Offices and adm. may be in a separate building, depending of the complex size)



of sound tracks, synchronization, etc.).

- The workshops and storerooms, constituting the third sector, are functionally integrated with the studios, and include the power plant.
- The fourth sector comprises the offices which would constitute a separate building in the case of a big complex.

Service teams schedule of accommodation

Table 5 below, translates the various considerations and sketch plans given in this Chapter into possible schedules of accommodation for the Service Teams Group.

GROUP III/TABLE 5: SERVICE TEAMS SCHEDULES OF ACCOMMODATION
Note: for the detail of each component, refer to the Drawings as indicated

COMPONENTS	Model I			Model II			Model III		
	Staff	Area Sqm.	Ref. Draw.	Staff	Area Sqm.	Ref. Draw.	Staff	Area Sqm.	Ref. Draw.
Evaluation Unit	4	65	No. 20	8	104	No. 20	12	143	No. 21
Educational Innovation Unit									
- Coordination and service unit	6	143	No. 10*	6	143	No. 10*	7	182	No. 10*
- Graphic design section	7	91	No. 22	7	91	No. 22	14	130	No. 22
- Photographic section	3	91	No. 23	3	91	No. 23	3	91	No. 23
- Film section	-	-	-	4	130	No. 23	4	130	No. 23
Sub-total Educational Innovation	16	325		20	455		28	533	
Prototype Equipment Workshop	15	415	No. 24	15	415	No. 24	15	415	No. 24
Radio and Ed. Broadcasting Unit	-	-	-	22	364	No. 25	22	364	No. 25
Utility rooms (toilets, storage)	-	26	No. 2	-	26	No. 2	-	52	No. 2
TOTAL SERVICE TEAMS	35	831		65	1364		77	1507	

* Detail as indicated in the drawing less the specialized library.

CHAPTER TEN: SUBSIDIARY BUILDINGS AND RESIDENTIAL ACCOMMODATION

Maintenance and storage

In a complex of the size of a CDC a variety of maintenance activities will be required regularly, including routine building maintenance, garden and environment maintenance and non-specialized vehicle maintenance. A simple, multi-purpose workshop where these activities can take place should be provided, the approximate size of which is indicated in Table 1 (See Chapter Four).

A central warehouse where a variety of material could be stored (material of common use for the whole centre; temporary storage of specialized material before distribution to the various units; temporary storage of materials before dispatch to schools for field testing, etc.) will be also needed, along with simple accommodation for the guard of the complex and for the drivers during work hours (for construction areas: See Table 1).

Residential

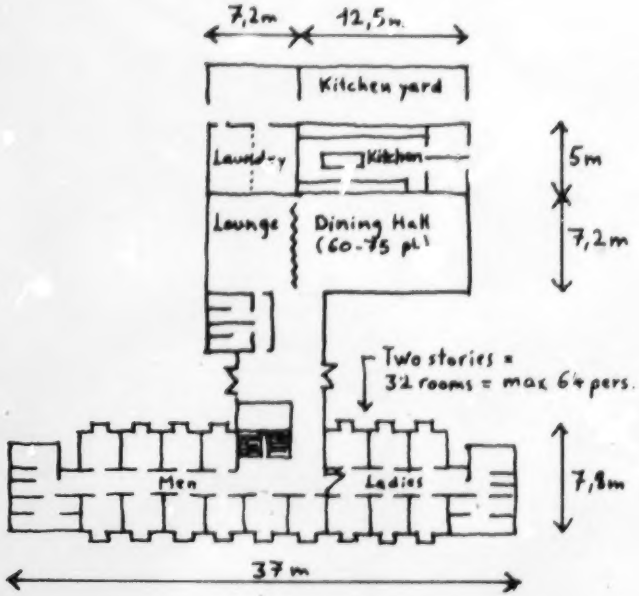
While a CDC would not be involved in mass, in-service education, nevertheless the in-service education of key personnel, who would provide the multiplier effect in support of the implementation of in-school and out-of-school curricula, would be an important activity of the Centre.

Particularly as a step towards extending the reach of the Centre to the provinces, modest size hostel accommodation for male and female field personnel would be essential at the Centre site only if there is no available accommodation in the vicinity.

Taking into account the fact that the common facilities of the CDC, such as the central library, etc. would be opened to the trainees, hostel facilities

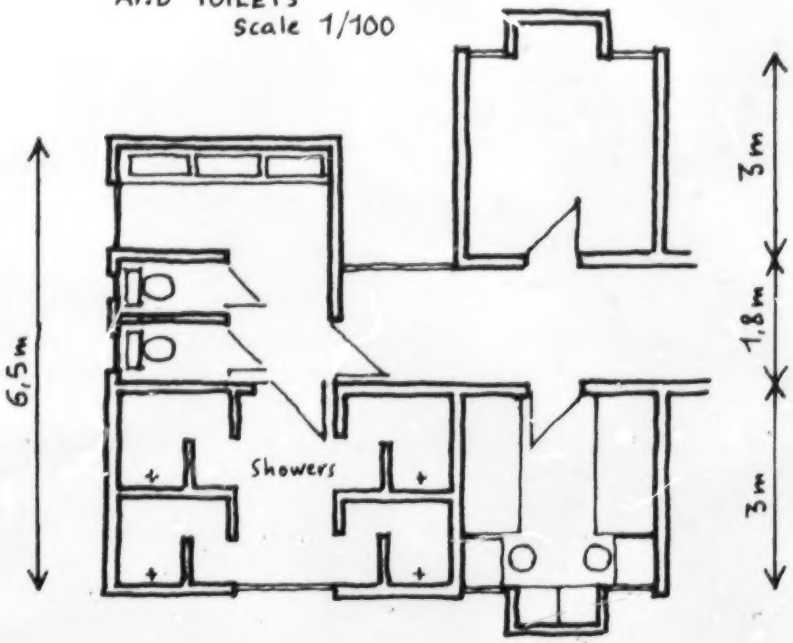
SKETCH PLAN FOR A TWO STORIES HOSTEL BLOCK

scale : 1/500



DETAIL OF ROOMS AND TOILETS

scale 1/100



Toilets and showers for 8 rooms (max 16 pers.) 27 sqm.

Minimum room for 2 persons 10 sqm.

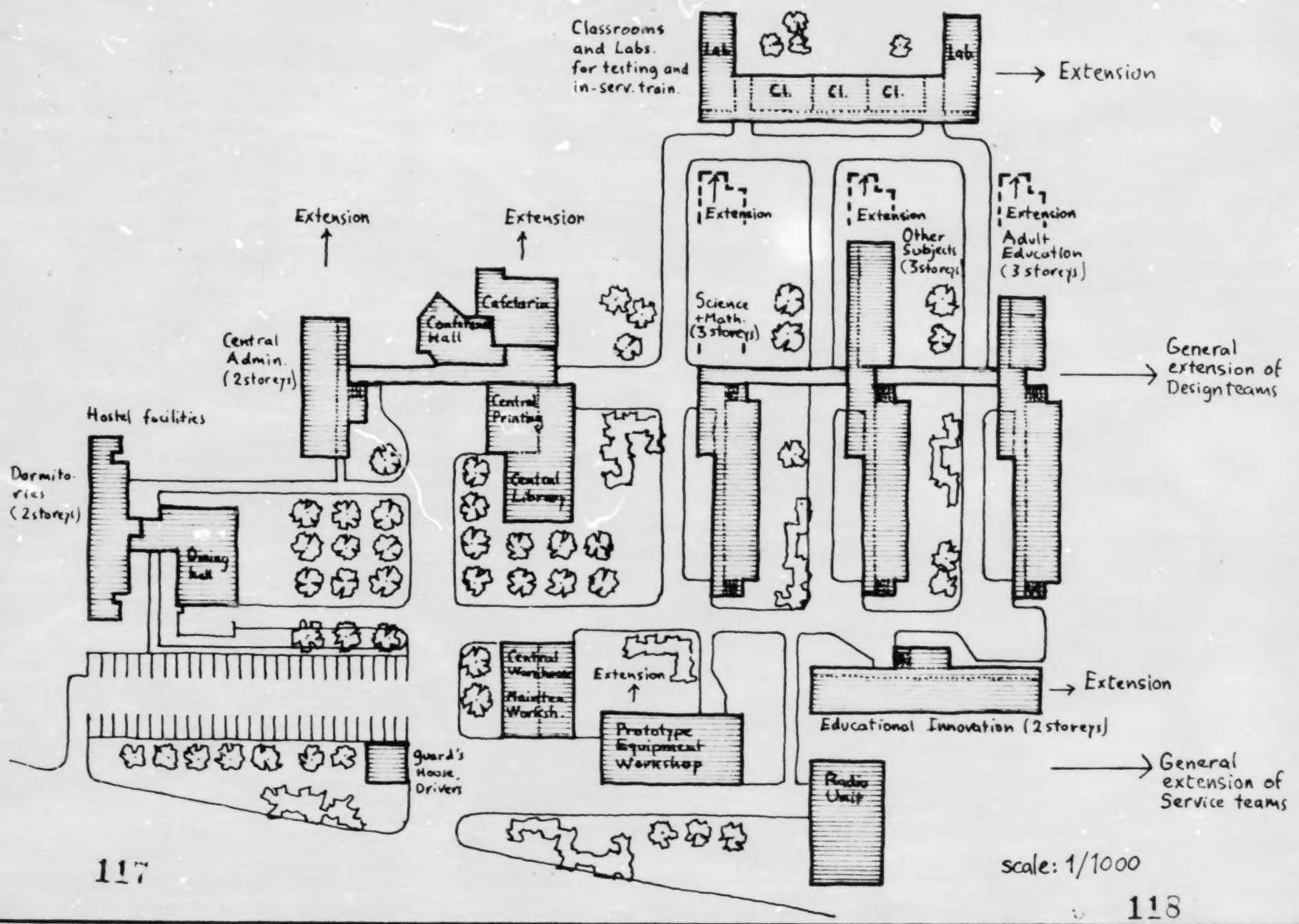
Schedule of accommodation	Model II (for 32 persons)	Model III. (for 64 persons as shown above)
	Sqm.	Sqm.
Dormitories (rooms)	160	320
Toilets and showers	75	130
Lounge	30	52
Laundry	20	35
Dining hall	45	90
Kitchen	30	63
Total (without circulation)	360	690

could be kept to a minimum size. They might include: bedrooms, toilets and showers, a lounge which might be separated from the dining hall by a movable partition in order to increase the possibilities of use of both rooms, the kitchen, and self laundry services (separately for males and females).

The scale of such a solution is illustrated in sketch form in Drawing No. 26.

GENERAL LAYOUT : EXAMPLE FOR MODEL III

DRAWING No. 27



CHAPTER ELEVEN: GENERAL LAYOUT

The general layout will vary of course according to the shape and size of the available land. Thus only general principles for the proposed accommodation can be given and have been illustrated in Drawing No. 27 (Model III in the particular case):

- Access to the central administration and common facilities which will be utilized in case of training sessions should be as direct as possible for people coming from outside as well as for people working in the design teams buildings.
- Access for delivery of material should be well studied, particularly for such components as the central warehouse, printing equipment workshop, maintenance workshop, central printing workshop, central library and kitchen of the hostel block.
- Location of the design teams' buildings should be such as to allow for easy communication with the service teams' buildings on the one hand, and to the facilities for testing and in-service training on the other (test classrooms and laboratories block).
- Finally, it should be kept in mind that a CDC is likely to grow in size in order to meet future demands. This has important implications for the general layout.

Independent extensions of the various components should be possible while maintaining the functional relationships and communications between the various components.

ANNEX

TABLE 6: COMPARISON BETWEEN THE PROPOSED MODELS AND SOME EXISTING CURRICULUM DEVELOPMENT CENTRES

75

* The figures include some divisions of the "Janak Education Material Centre"
** I.P.S.T.= Institute for the Promotion of Science and Technology

FUNCTIONAL COMPONENTS	EXISTING C.D.C IN KATHMANDU (NEPAL) *		EXISTING C.D.C IN COLOMBO (SRI LANKA)		Model I		Model II		EXISTING I.P.S.T IN BANGKOK** (THAILAND)		Model III	
	Staff	Sqm	Staff	Sqm	Staff	Sqm	Staff	Sqm	Staff	Sqm	Staff	Sqm
I.- ADMINISTRATION AND COMMON FACILITIES												
- Central administration (and visiting consultants)	30	109	19	168	25	286	25	286		409	35	429
- Central library	3	64	6	117	4	182	4	260		126	6	312
- Central duplication and printing workshop	5	28	5	92	5	104	5	104		63	10	156
- General conference rooms / hall				152		150		150	30	252		180
- Cafeteria / Canteen			6	369	4	126	4	126		200	6	192
- Toilets						31		31		28		52
Total I.	38	201	36	898	38	879	38	957	30	1078	57	1321
II.- DESIGN TEAMS												
- Direction (of curriculum developments)							9	221	73	1227	6	130
- Design teams in science and math.	7	40	34	283	20	273	28	377			41	702
- Design teams for other subjects	22	147	86	622	48	598	68	793	8	190	99	1378
- Classrooms and labs. for in-service training			9	301	2	221	2	221	9	1057	4	442
- Adult education (including facility for training)	1	20									89	1261
Total II.	30	207	129	1206	70	1092	107	1612	90	2474	239	3913
III.- SERVICE TEAMS												
- Information and public relations									7	95		
- Evaluation			3	39	4	65	8	104	11	133	12	143
- Educational Innovation (audio-vis.+ graphics)	20	342			16	325	20	455	40	465	28	533
- Prototype Equipment workshop	15	401	3	81	15	415	15	415		266	15	415
- Broadcasting (and T.V)	22	290					22	364			22	364
- Toilets, storage		10				26		26		76		52
Total III.	57	1043	6	120	35	831	65	1364	58	1035	77	1507
IV.- SUBSIDIARY BUILDINGS (Warehouse, etc...)	-	73	-	221	10	247	10	247	20	567	13	338
V.- RESIDENTIAL (Dormitories, Dining hall...)	-	-	-	-	-	-	6	360	14	786	8	690
TOTAL (without circulation area)	125	1524	171	2445	153	3049	226	4540	212	5940	394	7769
Circulation area		640		1065		761		1130		2820		1941
GRAND TOTAL (with circulation area)		2164		3510		3810		5670		8760		9710

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